

Part I.

60 Cents.

A SECOND VISIT
TO
THE UNITED STATES
OF
NORTH AMERICA.

BY SIR CHARLES LYELL, F.R.S.,

PRESIDENT OF THE GEOLOGICAL SOCIETY OF LONDON, AUTHOR OF "THE PRINCIPLES OF GEOLOGY," AND "TRAVELS IN NORTH AMERICA."

Complete in Two Parts.

NEW YORK:
HARPER & BROTHERS, PUBLISHERS,
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A SECOND VISIT TO THE UNITED STATES.

CHAPTER I.

Voyage from Liverpool to Halifax.—Gale.—Iceberg.—Drift Ice and Gulf Stream.—Coast of Newfoundland.—Engine-room of Steamer.—Conversations on Coolies in the West Indies.—Halifax.—News of Judge Story's Death.—Boston.—Success of the Mail Steam Packets.—Custom House Officers.

Sept. 4. 1845.—EMBARKED with my wife at Liverpool, in the *Britannia*, one of the Cunard line of steam-ships, bound for Halifax and Boston. On leaving the wharf, we had first been crammed, with a crowd of passengers and heaps of luggage, into a diminutive steamer, which looked like a toy by the side of the larger ship, of 1200 tons, in which we were to cross the ocean. I was reminded, however, by a friend, that this small craft was more than three times as large as one of the open caravels of Columbus, in his first voyage, which was only 15 tons burden, and without a deck. It is, indeed, marvelous to reflect on the daring of the early adventurers; for Frobisher, in 1576, made his way from the Thames to the shores of Labrador with two small barks of 20 and 25 tons each, not much surpassing in size the barge of a man-of-war; and Sir Humphry Gilbert crossed to Newfoundland, in 1583, in a bark of 10 tons only, which was lost in a tempest on the return voyage.

The morning after we set sail we found ourselves off Cork, in the midst of the experimental squadron of steamers and ships of the line, commanded by Sir Hyde Parker. They had been out several weeks performing their nautical evolutions, and we had the amusement of passing close to the largest ships of the fleet—the *St. Vincent* and the *Superb*. Our captain fired a salute as we went under the batteries of the last of these—the Admiral's ship.

After sailing at the rate of more than 200 miles a day for four days, our progress was retarded, Sept. 8, by an equinoctial gale, which came in from the southwest, and, blowing for twelve hours, raised such a sea, that we only made four miles an hour.

Another gale of still greater violence came on six days afterward, on the night of the 14th, when the ship was running at the rate of ten and a half miles an hour, along the eastern edge of the Great Bank. The wind had been N.E., when suddenly, and in an instant, it blew from the N.W. I was in my berth below when this squall struck the vessel, and supposed that we had run upon some floating timber or an iceberg. We felt the ship heel as if falling over. On inquiry next day of the captain, and the only passenger who was on deck at the time of this concussion, I learnt that they saw a cloud of white foam advancing toward them on the surface of the sea from the N.W., like a line of surf on a beach. The captain had time to get the sails hauled half up, all except the top-sail, which was torn to pieces, when the advancing line of foam reached the ship, at which moment there was some vivid lightning, which the passenger thought was the cause of the blow resembling the stroke of a solid body against the steamer. When the wind first filled the sails in an opposite direction, it seemed as if the masts must give way. All hands had been called on deck, and the men went into the rigging to furl the sails with the utmost order and coolness. In a few minutes the wind had veered rapidly round the compass, from N.W. to N.E., and then went on to blow from this, the old quarter again, a perfect hurricane for twenty-three hours; the spray being carried mast high, so that there was a complete mingling of sea and sky. We could never tell whether

the cloud which enveloped us consisted chiefly of the foam blown off the crests of the waves, or of the driving mist and rain which were falling during the greater part of the day.

Among our passengers were some experienced American sea-captains, who had commanded vessels of their own round Cape Horn, and, being now for the first time in a steamer at sea, were watching with professional interest the Britannia's behavior in the storm. They came to the conclusion, that one of these vessels, well appointed, with a full crew, skilled officers, and good engineers, was safer than any sailing packet; being light in their rigging, and having small sails, they run no danger of having their masts carried away in a stiff breeze, and the power of steam enables them always to make way, so as to steer and keep their head to the wind, on which safety depends. It sometimes happens, when a wave strikes a sailing vessel in a squall, that before she has time to work round and get her head to windward, another wave breaks over and swamps her, and to such an accident the loss of several packets between the United States and Liverpool is attributed.

I observed that there was no lightning conductor in our ship; and it seems to be the prevailing belief that steam-boats are less liable than other vessels to suffer from lightning, although the steamers in the royal navy are fitted with copper-wire rope conductors.

My chief amusement, when the weather was moderate, was to watch the porpoises (*Delphinus phocaena*) gamboling, rolling, and tumbling in the water, and yet keeping up with our ship when she was running eleven miles an hour. They were very numerous, usually following each other in a line at short intervals, each individual about four or five feet long, their backs of a blueish-black color, swimming without effort, and seeming scarcely to move either their fins or tail. Occasionally they dive, and then re-appear to take breath at a great distance, often leaping up out of the water, so as to display their silvery white bodies. The only other living creatures which attracted our attention, when still far from land, were enormous flights of sea-birds, which filled the air, or were seen swimming on the ocean near the shoal called

the Flemish Cap, lat. $47^{\circ} 35' N.$; long. $44^{\circ} 32' W.$ They feed on fish peculiar to these comparatively shallow parts of the Atlantic.

But the event of chief interest to me on this voyage was beholding, for the first time in my life, a large iceberg. It came in sight on the 13th Sept., a season when they are rarely met with here. We were nearing the Great Bank, which was about eight miles distant, the air foggy, so that I could only see it dimly through the telescope, although it was as white as snow, and supposed by the officers to be about 200 feet high. The foggy and chilly state of the atmosphere had led the captain to suspect the proximity of floating ice, and half-hourly observations had been made on the temperature of the sea, but the water was always at $49^{\circ} F.$, as is usual in this month. We were then in lat. $47^{\circ} 37' N.$, long. $45^{\circ} 39' W.$, our latitude corresponding to that of the Loire in France.

To a geologist, accustomed to seek for the explanation of various phenomena in the British Isles and Northern Europe, especially the transportation of huge stones to great distances, and the polishing and grooving of the surfaces of solid rocks, by referring to the agency of icebergs at remote periods, when much of what is now land in the northern hemisphere was still submerged, it is no small gratification to see, for the first time, one of these icy masses floating so far to the southward. I learnt from our captain that last year, June 1844, he fell in with an iceberg aground at some distance from the land off Cape Race, on the S.E. point of Newfoundland, in lat. $46^{\circ} 40' N.$ It was of a square shape, 100 feet high, and had stranded in a sea of some depth; for its sides were steep, and soundings of fifty fathoms were obtained close to the ice. It was seen at the same spot ten days afterward by a brig. A military officer on board also tells me that last year, when he was in garrison in Newfoundland, an iceberg continued aground in the harbor of St. John's for a year, and they used to fire cannon-balls at it from the battery. There are, indeed, innumerable well-authenticated cases of these islands of floating ice having stranded on the great oceanic shoals S.E. of Newfoundland, even in places where the water is no less than

100 fathoms deep, the average depth over the Great Bank being from forty to fifty fathoms. That they should be arrested in their course is not surprising, when we consider that the mass of floating ice below water is eight times greater than that above; and Sir James Ross saw icebergs which had run aground in Baffin's Bay, in water 1500 feet deep. If we reflect on the weight of these enormous masses, and the momentum which they acquire when impelled by winds and currents, and when they are moving at the rate of several miles an hour, it seems difficult to over-estimate the disturbance which they must create on a soft bottom of mud or loose sand, or the grinding power they must exert when they grate along a shelf of solid rock overspread with a layer of sand.

Mr. Redfield of New York has lately published* a chart showing the positions of the icebergs observed in the North Atlantic during the last fifteen years, and it will be remarked, that they have been met with at various points between the 47th and 36th parallels of latitude; the most southern being that which Captain Couthouy encountered, lat. $36^{\circ} 10' N.$, long. $39^{\circ} W.$, a mile long and 100 feet high. This berg was on the extreme southern boundary of the gulf stream, which it had crossed against the direction of the superficial current, so as to get as far south as the latitude of the Straits of Gibraltar. In fact, these great ice-islands coming from the Greenland seas are not stopped by the gulf-stream, which is a mere superficial current of warmer water flowing in an opposite direction, but are borne along from N.E. to S.W. by the force of the arctic under-current, consisting of colder water, into which the icebergs descend to a great depth.

All the circumstances connected with the geographical outline of the coast, the shape of the sea-bottom, the oceanic currents, and the prevailing winds, although liable to be modified and greatly altered in the course of time, may continue nearly the same for the next ten thousand or twenty thousand years; and in that period thousands of bergs, occasionally charged with fragments of rock, and many of them running aground in a variety of places, will be conveyed in every century over certain tracts

* Amer. Journ. Science, vol. xlviii. 1844.

of the Atlantic, and in given directions. The natural course of oceanic currents transporting ice from polar regions is from N.E. to S.W.; the westerly inclination being due to the influence of the increased velocity of the diurnal rotation of the earth's surface as we proceed southward. Now it is a well-known fact, and one of great geological interest, which I had an opportunity of verifying myself in 1842,* that in Canada the polished surfaces of hard rocks exhibit those striæ and straight parallel grooves (such as are generally ascribed to glacial action) in a N.E. and S.W. direction, and the blocks called erratic have also traveled from N.E. to S.W. Their course, therefore, agrees, as Mr. Redfield has pointed out, with the normal direction of polar currents charged with ice, where no disturbing causes have intervened. In order to account for the phenomenon, we have to suppose that Canada was submerged at the time when the rocks were polished and striated by the grating of the ice on the ancient sea-bottom; and that this was actually the case, is proved by independent evidence, namely, the occurrence of marine shells of recent species at various heights above the level of the sea in the region drained by the St. Lawrence.† Professor Hitchcock has shown that, in Massachusetts, there is another system of striæ and grooves running from N.N.E. to S.S.W.; the boulders and transported blocks of the same region having taken a corresponding course, doubtless, in consequence of the floating icebergs having, in that case, been made by winds or currents, or the shape of the land and sea-bottom, to deviate from the normal direction.

Many of the icebergs annually drifted into southern latitudes in the Atlantic, are covered with seals, which are thus brought into very uncongenial climates, and probably are never able to make their way back again. They are often seen playing about the rocks on the shores of Massachusetts in summer, so that they seem able, for a time at least, to accommodate themselves to considerable heat.

Early on the morning of the 15th of September, the captain

* See "Lyell's Travels in North America," vol. ii. p. 135.

† Ibid. vol. ii. p. 143.

got sight of land, consisting of the hills near St. John's, Newfoundland, about forty miles distant. When we came on deck, we were running rapidly in smooth water along the shore, within four miles of Trespassey Bay. The atmosphere was bright, and we had a clear view of the rocky coast, which reminded me of some of the most sterile, cold, and treeless parts of Scotland. Not even a shrub appeared to vary the uniform covering of green turf; yet we were in a latitude corresponding to the South of France.

In a large steam-ship like the *Britannia*, there are three very distinct societies, whose employments during the voyage are singularly contrasted. There are the sailors, all of whom were fully occupied under their officers, for a time at least, during the gale, furling the sails and attending to the ordinary duties of a sailing ship. Then there is the saloon, where gentlemen and well-dressed ladies are seen lounging and reading books, or talking, or playing backgammon, and enjoying, except during a hurricane, the luxuries and expensive fare of a large hotel. In another spacious room, which I had the curiosity to visit after the storm, is a large corps of enginemen and firemen, with sooty faces and soiled clothes, pale with heat, heaping up coals on the great furnaces, or regulating the machinery. On visiting the large engine-room, we were filled with admiration at seeing the complicated apparatus, and the ease with which it moved, having never once stopped for a minute when traversing 3000 miles of ocean, although the vessel had been pitching and rolling, and sometimes quivering, as she was forced by the power of the steam against the opposing waves, and although the ship had sometimes heeled at a very high angle, especially when struck suddenly by the squall of the 14th. The engine is so placed near the center of the ship, that during a storm the piston is never inclined at a higher angle than twelve degrees, which does not derange the freedom of its motion. The *Britannia*, a ship of 1200 tons, has four large boilers; the engines having a 440 horse power. When she left Liverpool she had 550 tons of coals in her, and burned from thirty to forty tons a day, her speed augmenting sensibly toward the end of the voyage, as she grew lighter;

but, on the other hand, the vibration caused by the machinery increasing also, much to the discomfort of the passengers.

Among the wonders of the engine-room, no object made so lively an impression on my mind as a small dial, called the Indicator, where a hand, like that of a clock, moving round in a circle, registers the number of revolutions made by the wheels of the engine during the whole voyage; this hand or index being attached to one of the moving shafts, and made to advance slightly by every stroke. We were going at the time at the rate of ten and a half miles an hour, and the paddle-wheels were revolving fifteen and a half times a minute; but during the gale they had only made six or seven revolutions, the engineer, to avoid too great a strain on the machinery, having then burned much less coal, and going no more than half speed. Our shortest day's sail, during the whole voyage, was 114 miles. I observed, on our arrival at Boston, that the number of revolutions registered by the Indicator was 275,122, the ship having run 2946 miles in fourteen days and twenty-two hours; the distance from Liverpool to Halifax being 2550 miles, and from thence to Boston 396. For the sake of comparing this result with former voyages of the *Britannia*, I made the following extract from the Log Book of the chief engineer:—

			Number of Revolutions of the Engines.	Length of Voyage. Days. Hours.	
Outward Voyage,	May,	1845	273,328	14	12
Homeward do.	June,	"	253,073	11	8
Outward do.	July,	"	282,409	18	13
Homeward do.	August,	"	292,122	14	2

It is remarkable how nearly the number of strokes made by the engine in our present voyage agrees with those recorded in the voyage of last May, which it will be seen was of the same length, with the exception of a few hours, the longer voyage exhibiting a slight excess in the number of revolutions. In all the four trips, the difference between the highest and lowest numbers, amounts to no more than a seventh or eighth of the whole. It is like the regular pulsation of the heart, beating a given number of times in a minute; the pulse quickening during

excitement and more rapid motion, and being slower when in comparative rest, yet on the whole preserving a remarkable uniformity of action. Nor can any one in full health and vigor be more unconscious of the rapid contractions and dilatations of the heart, than are nearly all the inmates of the steam-ship of the complicated works and movements of the machinery, on the accuracy of which their progress and safety depends.

In the course of the last twelve months, the steamers on this line have sometimes taken as much as seventeen, and even twenty-one days, to make their passage against head winds by Halifax to Boston; but the comparative advantage of steam power is never more evident than at the period of the most tedious voyages, the liners having required seventy days or more to cross in corresponding seasons.

During the passage we had some animated discussions in the saloon on the grand experiment now making by the British government, of importing Coolies, or Hindoo emigrants, from the Deccan into the West Indies, to make up for the deficiency of Negro labor consequent on the emancipation of the slaves. We had on board a Liverpool merchant, who had a large contract for conveying these Coolies across the ocean, and who told us that more than forty ships would be employed this year (1845) in carrying each 300 Hindoo laborers to Jamaica, at the cost of £16 per head, and that he should sell the casks, which contained the water for their drink, for the sugar trade in the West Indies. The New Englanders on board wished to know how far this proceeding differed from a new slave trade. It was explained to them that the emigrants were starving in their own country; that the act was a voluntary one on their part; and that, after a short term of years, the government was bound to give them a free passage back to their native country. Of this privilege many, after saving a sum of money, had actually availed themselves. It was also alleged that they made good agricultural laborers in a tropical climate. The Americans replied, that to introduce into any colony two distinct races, having different languages and religions, such as Negroes and Hindoos, is a curse of the greatest magnitude, and of the most

lasting kind, as experience had proved throughout the American continent.

A Barbadoes planter, who was present, declared his opinion that in his island the emancipation of the negroes had been successful ; the population, about 120,000, being dense, and a large proportion of them having white blood in their veins, with many of the wants of civilized men, and a strong wish to educate their children. The Americans, however, drew from him the admission, that in proportion as the colored people were rising in society, the whites, whose aristocratic feelings and tastes were wounded by the increased importance of the inferior race, were leaving Barbadoes, the richest of them retreating to England, and the poor seeking their fortunes in the United States. It was also conceded, that in the larger islands, such as Jamaica, which the Americans compared to their Southern States, the negroes have retreated to unoccupied lands and squatted, and could not be induced to labor, and were therefore retrograding in civilization ; so that the experience of more than ten years would be required before the Americans could feel warranted in imitating the example of England, even if they had the means of indemnifying the southern planters.

We landed at Halifax on the 17th of September, and spent some hours there very agreeably, much refreshed by a walk on terra firma, and glad to call on some friends in the town. I was surprised to find that some of our fellow passengers, bound for Montreal, intended to go on with us to Boston, instead of stopping here ; so great are the facilities now enjoyed of traveling from New England to Canada, passing viâ Boston by railway to Albany, and thence by steam-boats through Lakes George and Champlain to Montreal.

The chief subject of conversation, during the remaining two days of our voyage, was the death of Judge Story, the eminent jurist, whose works and decisions have been often cited as of high authority by English judges. The news of this unexpected event reached us at Halifax, and was evidently a matter of deep concern to his fellow citizens, by whom he had been much loved and admired. After retiring from the bench of the Supreme Court

at Washington, Story had been placed at the head of the Law School in Harvard University, which he had soon raised to celebrity from small beginnings, drawing students to his lectures from every state of the Union.

I afterward read, in the newspapers of Boston, several funeral orations pronounced in his honor, some from the pulpit, by preachers of his own denomination (he was president of the Unitarian Association), which praised him for his pure, scriptural, and liberal Christianity, and represented him as an earnest defender of the faith, one who had given to its evidences that accurate investigation which his reflecting mind and professional habits demanded. "What he found to be true, he was never ashamed or afraid to declare. He valued the Gospel and felt his own need of its restraining and consoling power, alike in temptation and grief," &c.

But eloquent eulogies were not wanting from ministers of some of the other churches, usually called in New England, by way of distinction from the Unitarian, "orthodox," some of which displayed at once the intensity and liberality of sectarian feeling in this country. They did homage to his talents and the uprightness of his conduct, and they dealt with his theological opinions in the spirit of Dryden's beautiful lines :—

"The soul of Arcite went where heathens go,
Who better live than we, though less they know."

I will extract, from one of the most favorable of these effusions, the following passage :—

"Judge Story was a Christian who professed a firm belief in the Bible as a revelation from God. He was a Unitarian ; but if he reposed in the divine mercy through the mediation of Christ, and if he came with the temper of a child to the Scriptures, I have no doubt he has been received of Him to whom, in his last words, he committed himself in prayer ; and, had he been more orthodox in his creed without the Christian spirit and the Christian life, his orthodoxy would not have saved him."

Sept. 19.—Early in the morning of the fifteenth day from our leaving Liverpool, we came in sight of the lighthouse of Cape

Anne, and a small and gayly painted green schooner, in full sail, and scudding rapidly through the water, brought us a pilot. In a few hours the long line of coast became more and more distinct, till Salem, Nahant, Lynn, the harbor of Boston and its islands, and at last the dome of the State House, crowning the highest eminence, came full into view. To us the most novel feature in the architectural aspect of the city, was the Bunker Hill Monument, which had been erected since 1842; the form of which, as it resembles an Egyptian obelisk, and possibly because I had seen that form imitated in some of our tall factory chimneys, gave me no pleasure.

After the cloudy and stormy weather we had encountered in the Atlantic, and the ice and fogs seen near the great banks, we were delighted with the clear atmosphere and bright sunshine of Boston, and heard with surprise of the intense heat of the summer, of which many persons had lately died, especially in New York. The extremes, indeed, of heat and cold in this country, are truly remarkable. Looking into the windows of a print shop, I saw an engraving of our good ship, the *Britannia*, which we had just quitted, represented as in the act of forcing her way through the ice of Boston harbor in the winter of 1844—a truly arctic scene. A fellow passenger, a merchant from New York, where they are jealous of the monopoly hitherto enjoyed by their New England rival, of a direct and regular steam communication with Europe, remarked to me that if the people of Boston had been wise, they would never have encouraged the publication of this print, as it was a clear proof that the British government should rather have selected New York, where the sea never freezes, as the fittest port for the mail packets. I had heard much during the voyage of this strange adventure of the *Britannia* in the ice. Last winter it appears there had been a frost of unusual intensity, such as had not been known for more than half a century, which caused the sea to be frozen over in the harbor of Boston, although the water is as salt there as in mid-ocean. Moreover, the tide runs there at the rate of four or five miles an hour, rising twelve feet, and causing the whole body of the ice to be uplifted and let down again to that amount twice every twen-

ty-four hours. Notwithstanding this movement, the surface remained even and unbroken, except along the shore, where it cracked.

Had the continuance of this frost been anticipated, it would have been easy to keep open a passage ; but on the 1st of February, when the *Britannia* was appointed to sail, it was found that the ice was seven feet thick in the wharf, and two feet thick for a distance of seven miles out ; so that wagons and carts were conveying cotton and other freights from the shore to the edge of the ice, where ships were taking in their cargoes. No sooner was it understood that the mail was imprisoned, than the public spirit of the whole city was roused, and a large sum of money instantly subscribed for cutting a canal, seven miles long and 100 feet wide, through the ice. They began the operation by making two straight furrows, seven inches deep, with an ice plough drawn by horses, and then sawed the ice into square sheets, each 100 feet in diameter. When these were detached, they were made to slide, by means of iron hooks and ropes fixed to them, under the great body of the ice, one edge being first depressed, and the ropes being pulled by a team of horses, and occasionally by a body of fifty men. On the 3d of February, only two days after her time, the steamer sailed out, breaking through a newly-formed sheet of ice, two inches thick, her bows being fortified with iron to protect her copper sheeting. She burst through the ice at the rate of seven miles an hour without much damage to her paddles ; but before she was in clear water, all her guard of iron had been torn off. An eye-witness of the scene told me that tents had been pitched on the ice, then covered by a slight fall of snow, and a concourse of people followed and cheered for the first mile, some in sleighs, others in sailing boats fitted up with long blades of iron, like skates, by means of which they are urged rapidly along by their sails, not only before the wind, but even with a side wind, tacking and beating to windward as if they were in the water.

The *Britannia*, released from her bonds, reached Liverpool in fifteen days, so that no alarm had been occasioned by the delay ; and when the British Post-Office department offered to defray

the expense of the ice-channel, the citizens of Boston declined to be reimbursed.

We were not detained more than an hour in the Custom-house, although the number of our packages was great. In that hour the newspapers which had come out with us had been so rapidly distributed, that our carriage was assailed in the streets by a host of vociferous boys, calling out, "Fifteen days later from Europe"—"The *Times* and *Punch* just received by the Britannia." In the course of my travels in the United States I heard American politicians complaining of the frequent change of officials, high and low, as often as a new party comes into power. In spite of this practice, however, the Custom-house officers, greatly to the comfort of the public, belong to a higher grade of society than those at Liverpool and our principal ports. I asked a New England friend, who was well acquainted with the "Old Country," whether the subordinates here are more highly paid? "By no means," he replied. "The difference, then," said I, "must be owing to the better education given to all in your public schools?" "Perhaps, in some degree," he rejoined; "but far more to the peculiarity of our institutions. Recent examples are not wanting of men who have passed in a few years from the chief place in one of our great Custom-houses to a seat in the Cabinet or an appointment as ambassador to a first-rate European power; but, what is far more to the point, men who are unsuccessful at the bar or the church, often accept inferior stations in the Custom-house and other public offices without loss of social position." This explanation led me to reflect how much the British public might gain if a multitude of the smaller places in the public service at home, now slighted by aristocratic prejudices as ungenteel, were filled by those gentlemen who, after being highly educated at Eton and other public schools, lead now a pastoral life in Australia, or spend their best days in exile far from their kindred and native land, as soldiers or sailors, within the tropics.

CHAPTER II.

Boston.—Horticultural Show in Faneuil Hall.—Review of Militia.—Peace Association.—Excursion to the White Mountains.—Railway Traveling.—Portsmouth, New Hampshire.—Geology, Fossils in Drift.—Submarine Forest.—Wild Plants : Asters, Solidagos, Poison Ivy.—Swallows.—Glacial Grooves.—Rocks transported by Antarctic Ice.—Body of a Whale discovered by an American Trader in an Iceberg.

GREAT progress has been made in beautifying the city of Boston by new public buildings in the three years since we were last here. Several of these are constructed of granite, in a handsome style of architecture. The site of the town is almost an island, which has been united to the main land by long mounds, which are beginning to radiate in all directions, except the east, like the spokes of a wheel. Railway trains are seen continually flying to and fro along these narrow causeways at all hours of the day.

On the evening of our arrival we went to a horticultural show of fruit and flowers in Faneuil Hall, where we found a large assembly of both sexes enjoying a "temperance feast," a band of music in the gallery, and the table spread with cakes, fruit, ices, tea, milk, and whey. I was glad to observe, what I am told, however, is an innovation here, that the ladies, instead of merely looking on from a gallery to see the gentlemen eat, were sitting at table in the body of the hall, and listening to some of the first orators of the land, Daniel Webster, R. C. Winthrop, and our friend and late fellow-voyager in the *Britannia*, Edward Everett, whose reception, on his return from his embassy to England, was most enthusiastic. He said, "he had been so lately rocking on the Atlantic, whose lullaby was not always of the gentlest, that he was hardly fit for a rocking in 'the old cradle of Liberty ;' and felt almost unconsciously inclined to catch at the table to steady himself, expecting to see the flowers and the fruit fetch away in some lee-lurch. Even the pillars of old Faneuil Hall,

which are not often found out of the true plumb-line, seemed to reel over his head."

Allusion was here made to this Hall having been the place of large popular meetings before 1775, where American patriotism was first roused to make a stand against the claims of the mother-country to impose taxes without consent of the provincial legislature. In later days, the building being under the control of the city authorities, and the Whigs being usually in the ascendant here, the moderate party have almost always obtained possession of the Hall.

* *Sept. 23.*—From the windows of a friend's house, opening on the Common, we have a full view of what is called the "Fall Parade," or autumnal review of the Boston militia, cavalry and infantry, which has lasted all day, ending with a sham fight and much firing of cannon. Not that there is any excess of military fervor in this State, as in some others at the present moment; on the contrary, a numerous and increasing Peace Association is distributing, gratis, many thousand copies of a recent Fourth-of-July oration against war and military establishments, delivered by Mr. Charles Sumner. I was asked by a young friend here, in full uniform, whether I did not think "Independence-day" (an anniversary when all who have a regimental costume are accustomed to wear it), a most inappropriate time for such an effusion, in which non-resistance principles bordering on Quakerism had been avowed; the orator asking, among other questions, "What is the use of the militia of the United States?" and going as far as Channing in pronouncing war to be unchristian.

I remembered having once admired the present Bishop of St. Asaph for choosing a certain day, set apart by the English Church for commemorating the "conspiracy, malicious practices, and Popish tyranny of the Romanists," for preaching a sermon on religious toleration; and I therefore felt some hesitation in condemning the opportunity seized upon by an enthusiast of the peace party for propagating his views.

"There is a soul of goodness in things evil
Would men observingly distill it out."

So long as the War of Independence lasted, I can understand

the policy of annually reading out to the assembled multitude the celebrated "Declaration," setting forth the injuries inflicted by Great Britain, her usurpations previous to the year 1776, "her design to reduce the Americans to a state of absolute dependence by quartering armed troops upon the people—refusing to make the judges independent of the crown—imposing taxes without consent of the colonies—depriving them of trial by jury—sometimes suspending their legislatures—waging war against the colonies, and transporting to their shores large armies of foreign mercenaries to complete the work of death, desolation, and tyranny already begun, with circumstances of cruelty and perfidy scarcely paralleled in the most barbarous ages—exciting domestic insurrections—bringing on the inhabitants of the frontiers the merciless Indian savages, whose known rule of warfare is the destruction of all ages, sexes, and conditions," &c., &c.

All this recital may have been expedient when the great struggle for liberty and national existence was still pending; but what effect can it have now, but to keep alive bad feelings, and perpetuate the memory of what should nearly be forgotten? In many of the newer States the majority of the entire population have either themselves come out from the British Isles as new settlers, or are the children or grandchildren of men who emigrated since the "Declaration" was drawn up. If, therefore, they pour out in schools, or at Fourth-of-July meetings, declamatory and warlike speeches against the English oppressors of America, their words are uttered by paricidal lips, for they are the hereditary representatives, not of the aggrieved party, but of the aggressors.

To many the Peace Associations appear to aim at objects as Utopian and hopeless as did the Temperance Societies to the generation which is now passing away. The cessation of war seems as unattainable as did the total abstinence from intoxicating liquors. But we have seen a great moral reform brought about, in many populous districts, mainly by combined efforts of well-organized societies to discourage intemperance, and we may hope that the hostilities of civilized nations may be mitigated at least by similar exertions. "In the harbor of Boston," says Mr.

Sunner, "the Ohio, a ship of the line, of ninety guns, is now swinging idly at her moorings. She costs as much annually to maintain her in service, in salaries, wages, and provisions, as four Harvard Universities." He might have gone on to calculate how many primary schools might be maintained by the disbanding of single regiments, or the paying off of single ships, of those vast standing armies and navies now kept up in so many countries in Europe. How much ignorance, bigotry, and savage barbarism in the lower classes might be prevented by employing in education a small part of the revenues required to maintain this state of armed peace !

Sept. 22.—At this season the wealthier inhabitants of Boston are absent at watering-places in the hills, where there are mineral springs, or at the sea-side. Some of them in their country villas, where we visited several friends in the neighborhood. The environs of Boston are very agreeable ; woods and hills, and bare rocks, and small lakes, and estuaries running far into the land, and lanes with hedges, and abundance of wild flowers. The extreme heat of summer does not allow of the green meadows and verdant lawns of England, but there are some well-kept gardens here—a costly luxury where the wages of labor are so high.

Sept. 24.—I had determined before the autumn was over to make an excursion to the White Mountains of New Hampshire, which, with the exception of those in part of the Alleghany range in North Carolina, are the loftiest east of the Mississippi. Accordingly, I set off with my wife on the railway for Portsmouth, fifty-four miles north of Boston, which we reached in two hours and three quarters, having stopped at several intervening places, and going usually at the rate of twenty miles an hour. There were about eighty passengers in the train, forty of whom were in the same carriage as ourselves. "The car," in shape like a long omnibus, has a passage down the middle, sometimes called "the aisle," on the back part of which the seats are ranged transversely to the length of the apartment, which is high enough to allow a tall man to walk in it with his hat on. Each seat holds two persons, and is well-cushioned and furnished with a

wooden back ingeniously contrived, so as to turn and permit the traveler to face either way, as he may choose to converse with any acquaintance who may be sitting before or behind him. The long row of windows on each side affords a good view of the country, of which more is thus seen than on our English railroads. The trains, moreover, pass frequently through the streets of villages and towns, many of which have sprung up since the construction of the railway. The conductor passes freely through the passage in the center, and from one car to another, examining tickets and receiving payment, so as to prevent any delay at the stations.

If we desire to form an estimate of the relative accommodation, advantages, comforts, and cost of the journey in one of these railways as compared with those of England, we must begin by supposing all our first, second, and third-class passengers thrown into one set of carriages, and we shall then be astonished at the ease and style with which the millions travel in the United States. The charge for the distance of fifty-four miles, from Boston to Portsmouth, was $1\frac{1}{2}$ dollar each, or 6s. 4*d*. English, which was just half what we had paid three weeks before for first-class places on our journey from London to Liverpool (2*l*. 10s. for 210 miles), the speed being in both cases the same. Here there is the want of privacy enjoyed in an English first-class carriage, and the seats, though excellent, are less luxurious. On the other hand, the power of standing upright when tired of the sitting posture is not to be despised, especially on a long journey, and the open view right and left from a whole line of windows is no small gain. But when we come to the British second and third-class vehicles, cushionless, dark, and if it happen to rain, sometimes closed up with wooden shutters, and contrast them with the cars of Massachusetts, and still more the average appearance, dress, and manners of the inmates, the wide difference is indeed remarkable; at the same time, the price which the humblest class here can afford to pay proves how much higher must be the standard of wages than with us.

On starting, we had first to cross the harbor of Boston in a large ferry-boat, where, to economize time, there is a bar with

refreshments, so that you may breakfast ; or, if you please, buy newspapers, or pamphlets, or novels. We then flew over rails, supported on long lines of wooden piles, following the coast, and having often the sea on one side, and fresh-water lakes, several miles long, or salt marshes, on the other. In some of the marshes we saw large haycocks on piles, waiting till the winter, when, the mud and water being firmly frozen, the crop can be carried in. We were soon at Lynn, a village of shoemakers, exporting shoes to distant parts of the Union ; and next went through the center of the town of Salem, partly in a tunnel in the main street ; then proceeded to Ipswich, leaving on our left Wenham Lake, and seeing from the road the wooden houses in which great stores of ice are preserved. In some of the low grounds I saw peat cut, and laid out to dry for fuel. We crossed the river Merrimack near its mouth, on a bridge of great length, supported by piles, and then entered New Hampshire, soon coming to the first town of that state, called Portsmouth, which has a population of 8000 souls, and was once the residence of the colonial governor. Here I made a short stay, passing the evening at the house of Mr. J. L. Hayes, to whom we had letters of introduction, where we found a gay party assembled, and dancing.

Next morning I set out on an excursion with Mr. Hayes, to explore the geological features of the neighborhood, which agree with those of the eastern coast generally throughout Massachusetts, and a great part of Maine—a low region of granitic rocks, overspread with heaps of sand and gravel, or with clay, and here and there an erratic or huge block of stone, transported from a distance, and always from the north. Lakes and ponds numerous, as in the country of similar geological composition in the south of Norway and Sweden. Here, also, as in Scandinavia, the overlying patches of clay and gravel often contain marine fossil shells of species still living in the Arctic Seas, and belonging to the genera *Saxicava*, *Astarte*, *Cardium*, *Nucula*, and others, the same which occur in what we call the northern drift of Ireland and Scotland. Some of the concretions of fine clay, more or less calcareous, met with in New Hampshire, in this

“drift” on the Saco river, thirty miles to the north of Portsmouth, contain the entire skeletons of a fossil fish of the same species as one now living in the Northern Seas, called the capelan (*Mallotus villosus*), about the size of a sprat, and sold abundantly in the London markets, salted and dried like herrings. I obtained some of these fossils, which, like the associated shells, show that a colder climate than that now prevailing in this region was established in what is termed “the glacial period.” Mr. Hayes took me to Kittery, and other localities, where these marine organic remains abound in the superficial deposits. Some of the shells are met with in the town of Portsmouth itself, in digging the foundation of houses on the south bank of the river Piscataqua. This was the most southern spot (lat. $43^{\circ} 6' N.$) to which I yet had traced the fossil fauna of the boulder period, retaining here, as in Canada, its peculiar northern characters, consisting of a profusion of individuals, but a small number of species; and a great many of those now abounding in the neighboring sea being entirely absent. It is only farther to the south, and near the extreme southern limit of the drift, or boulder clay, as at Brooklyn, in Long Island, for example, that a mixture of more southern species of shells begin to appear, just as Professor E. Forbes has detected, in the drift of the south of Ireland, the meeting of a Mediterranean and Arctic fauna.

Every where around Portsmouth I observed that superficial polish in the rocks, and those long, straight grooves or furrows, which I before alluded to (p. 18), as having been imprinted by icebergs on the ancient floor of the ocean. By the inland position of these fossil shells of *recent species*, the geologist can prove that, at times comparatively modern in the earth's history, the larger part of New England and Canada lay for ages beneath the waters of the sea, Lake Champlain and the valley of the St. Lawrence being then gulfs, and the White Mountains an island.* But it is a curious fact that we also discover along this same eastern coast signs no less unequivocal of partial subsidence of land at a period still more recent. The evidence consists of swamps, now submerged at low water, containing the roots and

* See my “Travels in N. America, 1841–2,” vol. ii. p. 142.

upright stools of the white cedar (*Cupressus thyoides*), showing that an ancient forest must once have extended farther seaward. One of these swamps we passed yesterday at Hampton, on the way from Boston to Portsmouth; and Mr. Hayes gave me specimens of the submarine wood in as fresh a state as any occurring a few yards deep in a British peat-bog.

That some of these repositories of buried trees, though geologically of the most modern date, may really be of high antiquity, considered with reference to the history of man, I have no doubt; and geologists may, by repeated observations, ascertain the minimum of time required for their formation previously to their submergence. Some extensive cedar-swamps, for example, of the same class occur on the coast near Cape May, in the southern extremity of the State of New Jersey, on the east side of Delaware Bay, filled with trees to an unknown depth; and it is a constant business to probe the soft mud of the swamp with poles for the purpose of discovering the timber. When a log is found, the mud is cleared off, and the log sawed up into proper lengths for shingles or boards. The stumps of trees, from four to five feet, and occasionally six feet in diameter, are found standing with their roots in the place in which they grew, and the trunks of aged cedars are met with in every possible position, some of them lying horizontally under the roots of the upright stumps. Dr. Bresley, of Dennis Creek, counted 1080 rings of annual growth between the center and outside of a large stump six feet in diameter, and under it lay a prostrate tree, which had fallen and been buried before the tree to which the stump belonged first sprouted. This lower trunk was five hundred years old, so that upward of fifteen centuries were thus determined, beyond the shadow of a doubt, as the age of one small portion of a bog, the depth of which is as yet unknown.

Mr. Hayes drove me in his carriage through woods of fir on both banks of the Piscataqua, where the ground was covered with that fragrant shrub, the candleberry (*Myrica cerifera*), the wax of which, derived from its shining black berries, is used for making candles. The odor of its leaves resembles that of our bog-myrtle (*Myrica gale*). The barberry, also (*Berberis vul-*

garis), although not an indigenous plant, is very abundant and ornamental in the woods here. It has overrun, in modern times, the eastern shores of New England, and made its way many miles inland, to the great annoyance of the agriculturists. Some naturalists wonder how it can spread so fast, as the American birds refuse, like the European ones, to feed on its red berries : but if it be true that cattle, sheep, and goats occasionally browse on this shrub, there is no mystery about the mode of its migration, for the seeds may be sown in their dung. The aromatic shrub called sweet fern (*Comptonia asplenifolia*), forms nearly as large a proportion of the undergrowth here as does the real fern (*Pteris*) in some of our English forests. I have seen this part of North America laid down in some botanical maps as the region of asters and solidagos ; and certainly the variety and abundance of golden rods and asters is at this season very striking, although a white everlasting (*Gnaphalium*) is almost equally conspicuous. Among other shrubs, I saw the poison-ivy (*Rhus radicans*), a species of sumach, growing on rocks and walls. It has no effect on some people, but the slightest touch causes an eruption on the skin of others. A New England botanist once told me that, by way of experiment, he rubbed his arm with the leaves, and they gave rise to a painful swelling, which was long in subsiding.

In Mr. Hayes's garden at Portsmouth were some of the smaller white-bodied swallows or martins (*Hirundo viridis*), protected from their enemy, the larger martin (*Hirundo purpurea*), by having small holes made for them in flower-pots, which the others could not pass through. The larger kind, or house-martin, is encouraged every where, small wooden boxes being made for them on roofs or on the tops of poles, resembling pigeon-houses, which may often be seen on the top of a sign-post before a New England inn. They are useful in chasing away birds of prey from the poultry-yard ; and I once saw a few of them attacking a large hawk. But I suspect they are chiefly favored for mere amusement sake, and welcomed, like our swallows, as the messengers of spring, on their annual return from the south. It is pleasing to hear them chattering with each other, and to mark their elegant forms and bluish-black plumage, or to watch them

on the wing, floating gently in the air, or darting rapidly after insects. Thousands of these birds, with their young, died in their nests in the spring of 1836, during a storm of cold rain, which lasted two weeks, and destroyed the insects throughout the states of New York and New England. The smaller species (*Hirundo viridis*) then regained possession of their old haunts, occupying the deserted houses of the more powerful species, which, like the house-sparrow in Europe, has followed the residence of man.

The sun was very powerful at noon ; but the severity of the cold here in winter is so great, that a singular effect is produced in the Piscataqua when the thermometer sinks to 15° below zero. The tide pours into the estuary a large body of salt water partaking of the warmer temperature of the gulf stream, and this water, coming into the colder atmosphere, smokes like a thermal spring, giving rise to dense fogs.

I had been desirous of making the acquaintance of Mr. Hayes, in consequence of having read, before I left England, an excellent paper published by him in the Boston Journal of Natural History, for 1844, on the Antarctic Icebergs, considered as explanatory of the transportation of rocky masses, and of those polished rocks and glacial grooves and striæ before alluded to. He had derived his information from experienced men engaged in the southern whale fisheries, principally merchants of New Bedford, Massachusetts, and Stonington, Rhode Island. On looking over his original MS. notes, I found he had omitted to print some particulars of the evidence, which I consider of no small interest as throwing light on a class of geological appearances hitherto thought least reconcilable with the ordinary course of nature. As to the carriage of huge fragments of rock for many hundreds of miles, from one region to another, such transportation was formerly appealed to by writers now living as among the marvels of the olden time, resembling the feats of the fabulous ages, and as much transcending the powers of nature in these degenerate days, as the stone hurled by Hector against the Grecian gate, exceeded in weight and size what could now be raised from the ground by two of the strongest of living men (*οἱ τοὶ νῦν βροτοί*).

But after reading the accounts given by Sir James Ross and Captain Wilkes, of the transfer of erratics by ice, from one point to another of the southern seas, these traveled boulders begin to be regarded quite as vulgar phenomena, or matters of every-day occurrence.

There still remain, however, among the wonders of the polar regions, some geological monuments which appear sufficiently anomalous when we seek to explain them by modern analogies. I refer to the preservation in ice of the carcasses of extinct species of quadrupeds in Siberia; not only the rhinoceros originally discovered, with part of its flesh, by Pallas, and the mammoth afterward met with on the Lena by Adams, but still more recently the elephant dug up by Middendorf, September, 1846, which retained even the bulb of the eye in a perfect state, and which is now to be seen in the museum at Moscow.*

In part of the unpublished evidence collected by Mr. Hayes, are statements which may perhaps aid us in elucidating this obscure subject; at all events they are not undeserving of notice, were it only to prove that nature is still at work in the icy regions enveloping a store of organic bodies in ice, which, after a series of geographical and climatal changes, and the extermination of some of the existing cetacea, might strike the investigator at some remote period of the future as being fully as marvelous as any monuments of the past hitherto discovered. The first extract, which I make, with Mr. Hayes' permission, is from the evidence of Captain Benjamin Pendleton, of Stonington, who, from his knowledge of the South Shetland fisheries, was chosen by the American government to accompany the late exploring expedition to the Antarctic seas. He had cruised in 1820 and 1822 for 600 miles along the lofty ice cliffs bounding the great southern continent. He says, that in 1821, when he wished to bury a seaman in one of the South Shetland islands, several parties of twelve men each, were set to dig a grave in the blue sand and gravel; but after penetrating in nearly a hundred places through six or eight inches of sand, they came down every where upon solid blue ice. At last he determined to have a hole cut in the ice, of which the island principally consisted, and the body of the man

* See "Principles of Geology," by the Author, 7th ed. 1847, p. 83.

was placed in it. In 1822, Captain Barnham dug out the body from the ice, and found the clothes and flesh perfectly fresh as when they were buried.

So far this narrative may be said merely to confirm and to bear out another published by Captain Kendall, of our navy, in the *London Geographical Journal*, 1830 (pp. 65, 66), where he relates that the soil of Deception Island, one of the South Shetlands, consists of ice and volcanic ashes interstratified, and he discovered there the body of a foreign sailor, which had long been buried, with the flesh and all the features perfectly preserved. Mr. Darwin, commenting on that fact, has observed, that as the icy soil of Deception Island is situated between lat. 62° and 63° S., it is nearer the equator by about 100 miles than the locality where Pallas first found the frozen rhinoceros of Siberia, in lat. 64° N.*

But Captain Pendleton goes on to relate, that while he was in Deception Island an iceberg was detached from a cliff of ice 800 feet high. The piece which fell off was from 60 to 100 feet deep, and from 1500 to 3000 feet in length. At an elevation of about 280 feet above the level of the sea, part of a whale was seen remaining inclosed in the ice-cliff, the head and anterior parts having broken off about the flippers and fallen down with the detached mass of ice. The species was what the whalers call the "Sulphur-bottom," resembling the fin-back. Captain Pendleton contrived to get out the portion which had fallen, and obtained from it eight or ten barrels of oil. The birds for a long time fed upon the entrails. This fact was known to Captain Beck and others. Captain William Pendleton, another whaler of experience, also informs Mr. Hayes, that skeletons of whales had been met with in the South Shetlands, when he visited them, 300 feet above the level of the sea. Thomas Ash also saw, on "Ragged Island" beach, the skeleton and some of the soft parts of a whale many feet above the reach of the highest tides. Captain William Beck, master of a whaling ship, has seen whales' bones and carcasses sixty or seventy feet above the sea-level, and a mile and a half from the water.

* Darwin's *Journal*, 2d ed. p. 249.

To explain how the bodies and skeletons of these inhabitants of the deep, whether found entombed or not in ice, were carried up to considerable heights above the level of the sea, appeared to me at first more difficult than to account for their having been included in solid ice. A few months after my visit to Portsmouth I saw Captain Wilkes, of the United States Exploring Expedition, and called his attention to the problem. He remarked, that the open sea sometimes freezes round the Sandwich Islands, so that ships can not approach within 100 miles of the shore. In like manner, in Antarctic regions, the ocean often freezes over the base of a cliff formed of barrier ice. In all these cases, the sheet of ice, however continuous, does not adhere to the land or the barrier, because the rise and fall of the tide, however slight, causes a rent, permitting the whole mass to move up and down. The snow, drifting off the land in vast quantities during winter, falls over the cliffs upon the frozen surface of the sea, until its weight is such that it causes the whole mass to sink; and unless the winds and currents happen to float it off, it may go on subsiding till it acquires a great thickness, and may at last touch the bottom. Before this happens, however, it usually gets adrift, and, before it has done melting, tumbles over or capsizes more than once.

On my return to England, in 1846, I described the same phenomena to my friend Dr. Joseph Hooker, and subsequently to Sir James Ross, and they both of them, without hearing Captain Wilkes's theory, suggested the same explanation, having observed that a great sheet of ice had formed in the sea by the freezing of melted snow on the southern or polar side of every Antarctic island. If the carcass of a dead whale be thrown up on this ice, it must soon be buried under other snow drifted from the land, and will at length be inclosed in the lower part of an iceberg, formed in the manner before described. The frequent overturning or reversal of position of these great masses, arises from the temperature of the water at the depth of 1000 or 1500 feet, to which they frequently descend, being much warmer than the incumbent air or more superficial water. When the inferior or submerged portions melt, the center of gravity is soon changed.

A large sheet of ice is produced by the melting of snow on the southern or polar side of every Antarctic island.

and a magnificent example is recorded by Sir James Ross of the capsizing of a great island of ice near Possession Island, in lat. $71^{\circ} 56' S$. What had previously been the bottom came up and rose 100 feet above the surface of the sea, and the whole of the new top and eastern side were seen to be covered with earth and stones. A party landed on it, and a slight rocking motion was still perceptible, such as no waves or swell of the sea, even in a storm, are ever capable of imparting to such large icebergs.* The lower down the carcass of the whale is buried in the original berg, the higher up will it be raised above the level of the sea when the same berg has turned over.

* Sir J. Ross's *Voyage to Southern Seas*, vol. i. pp. 195, 196.

CHAPTER III.

Portland in Maine.—Kennebec River.—Timber Trade.—Fossil Shells at Gardiner.—Augusta, the Capital of Maine.—Legal Profession: Advocates and Attorneys.—Equality of Sects.—Religious Toleration.—Calvinistic Theology.—Day of Doom.

Sept. 25, 1845.—HERE we are at mid-day flying along at the rate of twenty-five and occasionally thirty miles an hour, on our way to Portland, the chief city of Maine. It was only yesterday afternoon that we left Boston, and in less than three hours we performed what would have been formerly reckoned a good day's journey of forty-five miles, had seen at Portsmouth some collections of natural history, and afterward gone to a ball. In the forenoon of this day I have made geological excursions on both banks of the Piscataqua, and before dark shall have sailed far up the Kennebec. It is an agreeable novelty to a naturalist to combine the speed of a railway and the luxury of good inns with the sight of the native forest—the advantages of civilization with the beauty of unreclaimed nature—no hedges, few plowed fields, the wild plants, trees, birds, and animals undisturbed.

Cheap as are the fares, these railroads, I am told, yield high profits, because the land through which they run costs nothing. When we had traversed a distance of about sixty miles, the cars glided along some rails over the wharf at Portland, and we almost stepped from our seats on to the deck of the Huntress steamer, which was ready to convey us to the mouth of the Kennebec river.

After threading a cluster of rocky islands adorned with fir and birch in the beautiful Bay of Casco, we came to the Sound, and for a short space were in the open sea, with no view but that of a distant coast. As there was nothing to see, we were glad to be invited to dinner, and were conducted to the gentlemen's cabin, a sort of sunk story, to which the ladies, or the women of every degree, were, according to the usual etiquette, taken down first, and carefully seated at the table by the captain, before the

gentlemen were admitted. Above this apartment where we dined was the ladies' cabin, and above that the upper deck, where we sat to enjoy the prospect as we approached the mouth of the Kennebec. In the forepart of the vessel, on this upper deck, is a small room, having windows on all sides, where the man at the helm is stationed ; not at the stern, as in our boats, which is considered by the Americans as a great improvement on the old system, as the steersman's view can not be intercepted, and the passengers are never requested to step on one side to enable him to see his way. Directions to the engineer, instead of being transmitted by voice through an intermediate messenger, are given directly by one or more loud strokes on a bell. The fuel used is anthracite, the absence of oxygen being compensated by a strong current of air kept up by what resembles a winnowing-machine, and does the work of a pair of bellows.

After sailing up the Kennebec about fifteen miles we came to Bath, a town of 5000 souls, chiefly engaged in ship-building, a branch of industry in which the State of Maine ranks first in the Union ; the materials consisting of white oak and pine, the growth of native forests. Large logs of timber squared, and each marked with the owner's name, are often cast into the river, sometimes far above Augusta, and come floating down 100 miles to this place. In winter many of them get frozen into the ice and imprisoned for six or seven months, until the late spring releases them, and then not a few of them are carried far out into the Atlantic, where they have been picked up, with the owner's name still telling the place of their origin. The water is salt as far as Bath, above which it is fresh and freezes over, so as to allow sleighs and skaters to cross it in winter, although the influence of the tide extends as far up as Augusta, about forty miles above Bath. I am informed that the whole body of the ice rises and falls, cracking along the edges where it is weakest. Over the fissures planks are placed to serve as a bridge, or snow is thrown in, which freezes, and affords a passage to the central ice. The Kennebec, besides being enlivened by the "lumber trade," is at this season whitened with the sails of vessels laden with hay, which has been compressed into small bulk by the

power of steam. Many of these merchantmen are destined for New York, where the unusual heat and drought of the summer has caused a scanty crop of grass, but hundreds are bound to the distant ports of Mobile and New Orleans ; so that the horses of Alabama and Louisiana are made to graze on the sweet pastures of Maine, instead of the coarser and ranker herbage of the southern prairies. In a few months these northern-built ships will bring back bales of cotton for factories newly established by Boston capitalists, and worked on this river both by water power and steam. Such are the happy consequences of the annexation of Louisiana to the United States. But for that event, the favorite theories of political economy in New England, and the duty of protecting native industry, would have interposed many a custom-house and high tariff between Maine and the valley of the Mississippi.

As we passed Bath a large eagle, with black wings and a white body, was seen soaring over our heads ; and, a few miles above, where the salt and fresh water meet, seals were seen sporting close to the steamer. The Kennebec is said to abound in salmon. We admired the great variety of trees on its banks ; two kinds of birch with larger leaves than our British species, several oaks and pines, the hemlock with foliage like a yew-tree, and the silver-fir, and two species of maple, the sugar or rock maple (*Acer saccharinum*), and the white (*A. dasycarpum*), both of which yield sugar. To these two trees the beauty and brilliancy of the autumnal tints of the American forests are due, the rock maple turning red, purple and scarlet, and the white, first yellow, and then red.

We were conveyed in the Huntress to Gardiner, the head of steam-boat navigation here, sixty-eight miles distant from Portland, where we visited the country house of Mr. Gardiner, whose family gave its name to the settlement. It is built in the style of an English country seat, and surrounded by a park. At Mr. Allen's I examined, with much interest, a collection of fossil shells and crustacea, made by Mrs. Allen from the drift or "glacial" deposits of the same age as those of Portsmouth, already described. Among other remains I recognized the tooth of a

walrus, similar to one procured by me in Martha's Vineyard,* and other teeth, since determined for me by Professor Owen as belonging to the buffalo or American bison. These are, I believe, the first examples of land quadrupeds discovered in beds of this age in the United States. The accompanying shells consisted of the common mussel (*Mytilus edulis*), *Saxciava rugosa*, *Mya arenaria*, *Pecten Islandicus*, and species of the genera *Astarte*, *Nucula*, &c. The horizontal beds of clay and sand which contain these remains of northern species, and which imply that the whole region was beneath the sea at no distant period, impart to the scenery of the country bordering the Kennebec its leading features. The deposit of clay and sand is 170 feet thick in some places, and numerous valleys 70 feet deep are hollowed out of it by every small stream. At Augusta I saw this modern tertiary formation, 100 feet thick, resting on a ledge of mica schist, the shells being easily obtained from an undermined cliff of clay. In some places, as at Gardiner, conical hillocks, chiefly of gravel, about fifty feet high, and compared here, on account of the regularity of their form, to Indian mounds, stand isolated near the river. I conceive them to owe their shape to what the geologists term "denudation," or the action of waves and currents, which, as the country was rising gradually out of the sea, removed the surrounding softer clay and left these masses undestroyed. They would offer resistance to the force of moving water by the great weight and size of their component materials; for in them we find not only pebbles, but many large boulders of granite and other rocks.

Mr. Allen drove us in his carriage to Augusta, six miles from Gardiner, and 200 miles N.E. of Boston, where we visited the State House, handsomely built in the Grecian style, with a portico and large columns, the stone used being the white granite of this country. The rooms for the two houses of the legislature are very convenient. I was shown the library by the governor, who called my attention to some books and maps on geology, and talked of a plan for resuming the geological survey of the State, not yet completed.

* See "Travels," vol. i. p. 256.

Sept. 27.—Returned by the Huntress steamer to Portland, after sailing at the rate of fourteen miles an hour. On board were some lawyers, to one of whom, a judge in the State of Maine, Mr. Gardiner had introduced me. The profession of the law is, of all others in the United States, that which attracts to it the greatest number of able and highly educated men, not only for its own sake, but because it is a great school for the training up of politicians. The competition of so many practitioners cheapens fees, and, although this is said to promote litigation, it has at least the great advantage of placing the poor man on a more equal footing with the rich, as none but the latter can attempt to assert their rights in countries where the cost of a successful law-suit may be ruinous. Practically, there is much the same subdivision of labor in the legal profession here as in England; for a man of eminence enters into partnership with some one or more of the younger or less talented lawyers, who play the part assigned with us to junior counsel and attorneys. There are, however, no two grades here corresponding to barrister and attorney, from the inferior of which alone practitioners can pass in the regular course of promotion to the higher. Every lawyer in the United States may plead in court, and address a jury; and, if he is successful, may be raised to the bench: but he must qualify as counselor, in order to be entitled to plead in the Supreme Courts, where cases are heard involving points at issue between the tribunals of independent states. The line drawn between barrister and attorney in Great Britain, which never existed even in colonial times in Massachusetts, could only be tolerated in a country where the aristocratic element is exceedingly predominant. In the English Church, where seats in the House of Lords are held by the bishops, we see how the rank of a whole profession may be elevated by making high distinctions conferred only on a few, open to all. That, in like manner, the highest honors of the bar and bench might be open without detriment to the most numerous class of legal practitioners in Great Britain, seems to be proved by the fact, that occasionally some attorneys of talent, by quitting their original line of practice and starting anew, can attain, like the present Chief

Justice of the Common Pleas, to places of the first dignity. In Canada, under British rule, it is the custom to grant licenses to the same individual to practice indifferently in all the courts as advocate, solicitor, attorney, and proctor. When we consider the confidential nature of the business transacted by English attorneys, the extent of property committed to their charge, the manner in which they are consulted in family affairs of the utmost delicacy, as in the framing of marriage contracts and wills, and observe, moreover, how the management of elections falls into their hands, we may well question the policy of creating an artificial line of demarkation between them and the advocates, marked enough to depress their social rank, and to deter many young men of good families, who can best afford to obtain a liberal education, from entering the most profitable, and, in reality, the most important branch of the profession.

I have mentioned the Supreme Courts; in these, in each state, cases are heard involving points at issue between two independent jurisdictions; and in order to preserve uniformity in the interpretation of many different codes, as in the statutes passed from time to time by state legislatures, the previous decisions of courts of law are referred to, and the authority of judges of high repute in any part of the Union, and even in Great Britain, frequently cited. As points of international law are perpetually arising between so many jurisdictions, the Supreme Courts afford a fine field for the exercise of legal talent, and for forming jurists of enlarged views.

Portland, with 15,000 inhabitants, is the principal city of Maine; gay and cheerful, with neat white houses, shaded by avenues of trees on each side of the wide streets, the bright sunny air unsullied, as usual in New England, by coal smoke. There are churches here of every religious denomination: Congregationalists, Baptists, Methodists, Free-will Baptists, Universalists, Unitarians, Episcopalians, Roman Catholics, and Quakers, all living harmoniously together. The late governor of the state was a Unitarian; and, as if to prove the perfect toleration of churches the most opposed to each other, they have recently had a Roman Catholic governor

On Sunday we accompanied the family of a lawyer, to whom we had brought letters, to a Unitarian church. There was nothing doctrinal in the sermon, and, among other indications of the altered and softened feelings of the sects which have sprung from the old Puritan stock, I remarked a gilt cross placed over the altar. The officiating minister told me that this step had been taken with the consent of the congregation, though not without the opposition of some of his elders. The early Puritans regarded this symbol as they did pictures and images, as the badges of superstition, the relics of the idolatrous religion so lately renounced by them; and it is curious to read, in the annals of the first colonists at Salem, how, in 1634, the followers of Roger Williams, the Brownist, went so far as to cut that "popish emblem," the red cross, out of the royal standard, as one which the train bands ought no longer to follow.*

During my first visit to the New England States, I was greatly at a loss to comprehend by what means so large a population had been brought to unite great earnestness of religious feeling with so much real toleration. In seeking for the cause, we must go farther back than the common schools, or at least the present improved state of popular education; for we are still met with the question, How could such schools be maintained by the state, or by compulsory assessments, on so liberal a footing, in spite of the fanaticism and sectarian prejudices of the vulgar? When we call to mind the religious enthusiasm of the early Puritans, and how at first they merely exchanged a servile obedience to tradition, and the authority of the Church, for an equally blind scripturalism, or implicit faith in the letter of every part of the Bible, acting as if they believed that God, by some miraculous process, had dictated all the Hebrew words of the Old, and all the Greek of the New Testament; nay, the illiterate among them cherishing the same superstitious veneration for every syllable of the English translation—how these religionists, who did not hesitate to condemn several citizens to be publicly whipped for denying that the Jewish code was obligatory on Christians as a rule of life, and who were fully persuaded that they alone were the

* Graham's History of United States, vol. i. p. 227.

chosen people of God, should bequeath to their immediate posterity such a philosophical spirit as must precede the organization by the whole people of a system of secular education acceptable to all, and accompanied by the social and political equality of religious sects such as no other civilized community has yet achieved—this certainly is a problem well worthy of the study of every reflecting mind. To attribute this national characteristic to the voluntary system, would be an anachronism, as that is of comparatively modern date in New England; besides that the dependence of the ministers on their flocks, by transferring ecclesiastical power to the multitude, only gives to their bigotry, if they be ignorant, a more dangerous sway. So, also, of universal suffrage; by investing the million with political power, it renders the average amount of their enlightenment the measure of the liberty enjoyed by those who entertain religious opinions disapproved of by the majority. Of the natural effects of such power, and the homage paid to it by the higher classes, even where the political institutions are only partially democratic, we have abundant exemplification in Europe, where the educated of the laity and clergy, in spite of their comparative independence of the popular will, defer outwardly to many theological notions of the vulgar with which they have often no real sympathy.

To account for the toleration prevailing in New England and the states chiefly peopled from thence, we must refer to a combination of many favorable circumstances, some of them of ancient date, and derived from the times of the first Puritan settlers. To these I shall have many opportunities of alluding in the sequel; but I shall mention now a more modern cause, the effect of which was brought vividly before my mind, in conversations with several lawyers of Maine, New Hampshire, and Massachusetts, whom I fell in with on this tour. I mean the reaction against the extreme Calvinism of the church first established in this part of America, a movement which has had a powerful tendency to subdue and mitigate sectarian bitterness. In order to give me some idea of the length to which the old Calvinistic doctrines were instilled into the infant mind, one of my companions presented me with a curious poem, called the "Day of Doom,"

formerly used as a school book in New England, and which elderly persons known to him had been required, some seventy years ago, to get by rote as children. This task must have occupied no small portion of their time, as this string of doggrel rhymes makes up no less than 224 stanzas of eight lines each. They were written by Michael Wigglesworth, A.M., teacher of the church of Malden, New England, and profess to give a poetical description of the Last Judgment. A great array of Scripture texts, from the Old and New Testament, is cited throughout in the margin as warranty for the orthodoxy of every dogma.

Were such a composition now submitted to any committee of school managers or teachers in New England, they would not only reject it, but the most orthodox among them would shrewdly suspect it to be a "weak invention of the enemy," designed to caricature, or give undue prominence to, precisely those tenets of the dominant Calvinism which the moderate party object to, as outraging human reason and as derogatory to the moral attributes of the Supreme Being. Such, however, were not the feelings of the celebrated Cotton Mather, in the year 1705, when he preached a funeral sermon on the author, which I find prefixed to my copy of the sixth edition, printed in 1715. On this occasion he not only eulogizes Wigglesworth, but affirms that the poem itself contains "plain truths drest up in a plain meter;" and further prophesies, that "as the 'Day of Doom' had been often reprinted in both Englands, it will last till the Day itself shall arrive." Some extracts from this document will aid the reader to estimate the wonderful revolution in popular opinion brought about in one or two generations, by which the harsher and sterner features of the old Calvinistic creed have been nearly eradicated. Its professors, indeed, may still contend as stoutly as ever for the old formularies of their hereditary faith, as they might fight for any other party banner; but their fanatical devotion to its dogmas, and their contempt for all other Christian churches, has happily softened down or disappeared.

The poem opens with the arraignment of all "the quick and dead," who are summoned before the throne of God, and, having each pleaded at the bar, are answered by their Judge. Some

of them declare that the Scriptures are "so dark, that they have puzzled the wisest men;" others that, being "heathens," and having never had "the written Word preached to them," they are entitled to pardon; in reply to which, the metaphysical subtleties of the doctrines of election and grace are fully propounded. The next class of offenders might awaken the sympathies of any heart not protected by a breastplate of theological dogmatism :—

"Then to the bar all they drew near
Who died in infancy,
And never had, or good or bad,
Effected personally," &c.

These infants remonstrate against the hardship of having Adam's guilt laid to their charge :—

"Not we, but he, ate of the tree
Whose fruit was interdicted;
Yet on us all, of his sad fall,
The punishment's inflicted."

The Judge replies, that none can suffer "for what they never did :"—

- (171.) "But what you call old Adam's fall,
And only his trespass,
You call amiss to call it his,
Both his and yours it was.
- (172.) "He was designed, of all mankind,
To be a public head;
A common root, whence all should shoot,
And stood in all their stead.
"He stood and fell, did ill and well
Not for himself alone,
But for you all, who now his fall
And trespass would disown.
- (173.) "If he he had stood, then all his brood
Had been established," &c.
- (174.) "Would you have grieved to have received
Though Adam so much good?" &c.
"Since then to share in his welfare
You would have been content,
You may with reason, share in his treason,
And in his punishment."

A great body of Scripture texts are here introduced in confirmation ; but the children are told, even including those " who from the womb unto the tomb were straightway carried," that they are to have " the easiest room in hell :"—

(181.) " The glorious King, thus answering,
They cease, and plead no longer,
Their consciences must needs confess
His reasons are the stronger."

The pains of hell and the constant renovation of strength to enable the " sinful wight" to bear an eternity of torment, are then dilated upon at such length, and so minutely, and a picture so harrowing to the soul is drawn, as to remind us of the excellent observations on this head of a modern New England divine. " It is not wonderful," he says, " that this means of subjugating the mind should be freely used and dreadfully perverted, when we consider that no talent is required to inspire fear, and that coarse minds and hard hearts are signally gifted for this work of torture." " It is an instrument of tremendous power," he adds, " enabling a Protestant minister, whilst disclaiming papal pretensions, to build up a spiritual despotism, and to beget in those committed to his guidance a passive, servile state of mind, too agitated for deliberate and vigorous thought."*

That the pious minister of Malden, however, had no desire to usurp any undue influence over his panic-stricken hearers, is very probable, and that he was only indulging in the usual strain of the preachers of his time, when he told of the " yelling of the damned, as they were burnt eternally in the company of devils," and went on to describe how—

" God's vengeance feeds the flame
With piles of wood and brimstone flood,
That none can quench the same."

We next learn that the peace and calm blessedness of the saints elect, who are received into heaven, is not permitted to be disturbed by compassion for the damned ; mothers and fathers feeling no pity for their lost children :—

* Channing's Works, London, vol. iii. p. 263.

"The godly wife conceives no grief,
Nor can she shed a tear,
For the sad fate of her dear mate
When she his doom doth hear."

The great distinction between the spirit of the times when these verses were written and the present age, appears to be this, that a paramount importance was then attached to those doctrinal points in which the leading sects differed from each other, whereas now Christianity is more generally considered to consist essentially in believing and obeying those scriptural precepts on which all churches agree.

CHAPTER IV.

Journey from Portland to the White Mountains.—Plants.—Churches, School-houses.—Temperance Hotel.—Intelligence of New Englanders.—Climate, Consumption.—Conway.—Division of Property.—Every Man his own Tenant.—Autumnal Tints.—Bears hybernating.—Willey Slide.—Theory of Scratches and Grooves on Rocks.—Scenery.—Waterfalls and Ravines.—The Notch.—Forest Trees and Mountain Plants.—Fabyan's Hotel.—Echo.

Sept. 28, 1845.—LEAVING Portland and the sea-coast, we now struck inland in a westerly direction toward the White Mountains, having hired a carriage which carried us to Standish. We passed at first over a low, featureless country, but enlivened by the brilliant autumnal coloring of the foliage, especially the bright red, purple, and yellow tints of the maple. The leaves of these trees and of the scrub oak had been made to change color by the late frost of the 10th of this month. On the borders of the road, on each side, mixed with the fragrant "sweet fern," we saw abundance of the *Spiræa tomentosa*, its spike of purplish flowers now nearly faded. The name of "hard hack" was given to it by the first settlers, because the stalk turned the edge of the mower's scythe. There were also golden rods, everlastings, and asters in profusion; one of the asters being called "frost blow," because flowering after the first frost. We also gathered on the ground the red fruit of the checkerberry (*Gaultheria procumbens*), used in New England to flavor sweetmeats. By the side of these indigenous plants was the common English self-heal (*Prunella vulgaris*), the mullein (*Verbascum thapsus*), and other flowers, reminding me of the remark of an American botanist; that New England has become the garden of European weeds; so that in some agricultural counties near the coast, such as Essex in Massachusetts, the exotics almost outnumber the native plants. It is, however, found, that the farther we travel northward, toward the region where North America and Europe approach

each other, the proportion of plants specifically common to the two continents is constantly on the increase ; whereas in passing to the more southern states of the Union, we find almost every indigenous species to be distinct from European plants.

Although the nights are cold, the sun at mid-day is very hot, the contrast of temperature in the course of each twenty-four hours being great, like that of the summer and winter of this climate.

We journeyed on over very tolerable roads without paying turnpikes, one only, I am told, being established in all Maine. The expenses of making and repairing the highways are defrayed by local taxes, a surveyor being appointed for each district. We went through the villages of Gorham, Standish, Baldwin, Hiram, and Bloomfield, to Conway, and then began to enter the mountains, the scenery constantly improving as we proceeded. Here and there we saw Indian corn cultivated, but the summer of Maine and New Hampshire is often too short to bring this grain to maturity.

Usually, in a single village, we saw three, four, or five churches, each representing a different denomination ; the Congregationalists, Baptists, Methodists, and now and then, though more rarely, the Unitarians. Occasionally, in some quiet spot where two village roads cross, we saw a small, simple building, and learned that it was the free or common school provided by law, open to all, not accepted as a bounty, but claimed as a right, where the children of rich and poor, high and low, and of every sect, meet upon perfect equality. It is a received political maxim here, that society is bound to provide education, as well as security of life and property, for all its members.

One evening, as we were drawing near to a straggling village, in the twilight, we were recommended by a traveler, whom we had met on the road, to take up our quarters at a temperance hotel, where, he said, " there would be no loafers lounging and drinking drams in the bar-room." We looked out for the sign, and soon saw it, surmounted by a martin-house of four stories, each diminishing in size from the bottom to the top, but all the apartments now empty, the birds having taken flight, warned by

the late frost. We had, indeed, been struck with the dearth of the feathered tribe in Maine at this season, the greater number of birds being migratory. As soon as our carriage stopped at the door, we were ushered by the host and his wife into a small parlor, where we found a blazing wood fire. It was their private sitting-room at times, when they had no guests, and on the table were books on a variety of subjects, but most of them of a religious or serious character, as Bishop Watson's *Apology* in reply to Tom Paine. We saw, also, a treatise on Phrenology, styled "The only True Philosophy," and Shakspeare, and the poems of Cowper and Walter Scott. In each window were placed two chairs, not ready to be occupied, as they would be in most countries, but placed face to face, or with their fronts touching each other, the usual fashion in New England.

On one of the walls was seen, in a gilt frame, the Declaration of Independence, with all the signatures of the subscribers, surrounded by vignettes or portraits of all the ten presidents of the United States, from General Washington to Mr. Tyler. On another side of the room was a most formidable likeness of Daniel Webster, being an engraving published in Connecticut. Leaning over the portrait of the great statesman, is represented an aged man holding a lantern in his hand, and, lest the meaning of so classical an allusion should be lost, we read below—

"Diogenes his lantern needs no more,
An honest man is found, the search is o'er."

While supper was preparing, I turned over a heap of newspapers, of various shades of politics. One of them contained a spirited reply to the leading article of an extreme democratic journal, which had enlarged on a favorite text of the popular party, "The whole of Oregon is ours." In another I saw, in large type, "The continent, the whole continent down to the isthmus;" so that, before Texas is yet fairly annexed, the imagination of the "more territory" zealots has incorporated all Mexico, if not Central America, into the Union. In the obituaries were recorded, as usual, the names of several "revolutionary soldiers," aged eighty-five and ninety, and I spent some minutes

in wondering why they who fought for republican independence had been so frequently rewarded with longevity, till it occurred to me that, he who took the field before 1776 could not die a juvenile in 1845. Among other electioneering addresses, I read the following: "Fellow democrats, the Philistines are upon us, the whigs are striving to sow dissension in our ranks, but our object must be to place in the senate a sterling democrat," &c. Such an appeal to electors who are to fill up a vacancy in the more conservative branch of the Congress at Washington, is sufficiently startling to an Englishman. Another article, headed, "Henry Clay, President for 1848," seemed a most premature anticipation of a future and distant contest, Mr. Polk having just been chosen for the next four years as first magistrate, after many months of excitement and political turmoil. Yet, upon the whole, the provincial newspapers appear to me to abound in useful and instructive matter, with many well-selected extracts from modern publications, especially travels, abstracts of lectures on temperance or literary and scientific subjects, letters on agriculture, or some point of political economy or commercial legislation. Even in party politics, the cheapness of the innumerable daily and weekly papers enables every villager to read what is said on more than one side of each question, and this has a tendency to make the multitude think for themselves, and become well informed on public affairs.

We happened to be the only strangers in the tavern, and, when supper was brought in by the landlord and his wife, they sat down beside us, begged us to feel at home, pressed us to eat, and evidently considered us more in the light of guests whom they must entertain hospitably, than as customers. Our hostess, in particular, who had a number of young children and no nurse to help her, was willing to put herself to some inconvenience rather than run the risk of our feeling lonely. Their manners were pleasing, and, when they learned that we were from England, they asked many questions about the free-kirk movement in Scotland, and how far the system of national education there differed from that in Prussia, on which the landlord had been reading an article in a magazine. They were greatly amused

when I told them that some of the patriots of their State had betrayed to me no slight sensitiveness and indignation about an expression imputed to Lord Palmerston in a recent debate on the Canadian border-feud, when he spoke of "the *wild* people of Maine."

They were most curious to learn the names of the rocks and plants we had collected, and told us that at the free-school they had been taught the elements of geology and botany. They informed us that in these rural districts, many who teach in the winter months spend the money they receive for their salary in educating themselves in some college during the remainder of the year; so that a clever youth may in this way rise from the humblest station to the bar or pulpit, or become a teacher in a large town. Farm laborers in the State, besides being boarded and found in clothes, receive ten dollars, or two guineas, a month wages, out of which they may save and "go west," an expression every where equivalent to bettering one's condition. "The prospect of heaven itself," says Cooper, in one of his novels, "would have no charms for an American of the back-woods, if he thought there was any place farther west."

I remarked that most of the farmers and laborers had pale complexions and a care-worn look. "This was owing partly," said the landlord, "to the climate, for many were consumptive, and the changes from intense heat to great cold are excessive here; and partly to the ambitious, striving character of the natives, who are not content to avoid poverty, but expect, and not without reason, to end their days in a station far above that from which they start." We were struck with the almost entire absence of the negro race in Maine, the winter of this State being ill suited to them. The free blacks are in great part paupers, and supported by the poor laws. We fell in with a few parties of itinerant Indians, roaming about the country like our gipsies.

Resuming our journey, we stopped at an inn where a great many mechanics boarded, taking three meals a day at the ordinary. They were well dressed, but their coarse (though clean) hands announced their ordinary occupation. After dinner several

of them went into the drawing-room, where some "ladies" of their own class were playing on a piano-forte; other mechanics were reading newspapers and books, but after a short stay they all returned to their work. On looking at the books they had laid down, I found that one was D'Israeli's "Coningsby," another Burns' Poems, and a third an article just reprinted from Frazer's Magazine, on "the Policy of Sir Robert Peel."

As we passed through Conway, seeing there was but one meeting-house, I asked to what denomination it belonged. The reply was, "Orthodox." I went on to say that the place seemed to be thriving. My informant replied, with evident satisfaction, "Yes, and every man here is his own tenant," meaning that they all owned the houses and lands they occupied. To be a lessee, indeed, of a farm, where acres may be bought so cheap, is a rare exception to the general rule throughout the United States. The approach to an equal subdivision of property among children, is not the result here of a compulsory law, as in France, but of custom; and I was surprised to find how much the partition is modified, according to the individual views of the testator. I was assured, indeed, by persons on whose authority I could depend, that in nine cases out of ten the small working farmers in New England do not leave their property in equal shares to their children, as the law would distribute it if they died intestate. It is very common, for example, to leave the sons twice as much as the daughters, and frequently to give the eldest son the land, requiring him to pay small legacies to the others. In the case of one of my acquaintances, where the sons had larger shares than the daughters, it was provided, that if one of the two brothers died, the other should take all his share. As a general rule, the larger the estate the greater is the inequality of partition among the children. When I inquired into the manner in which the twelve or fourteen largest fortunes, such as would rank as considerable in England, had been bequeathed in Boston and its vicinity, and in New York, I was astonished to learn that none of them had been left in equal shares among the children by men of English descent, the one and only exception being that of a Frenchman. In the more newly settled states, there is less in-

equality in the distribution both of real and personal property ; but this is doubtless in no small degree connected with the more moderate size of the fortunes there. The ideas entertained in some of these ruder parts of the country, of the extreme destitution of the younger children of aristocratic families in Great Britain, are often most mistaken and absurd ; though particular instances in Scotland, springing out of the old system of entails, may have naturally given rise to erroneous generalizations. It was evident to me that few, if any, of these critics, had ever regarded primogeniture as an integral portion of a great political system, wholly different from their own, the merits of which can not fairly be tried by a republican standard.

Both in New England and in the State of New York, I heard many complaints of the inadequacy of the capital belonging to small landed proprietors to make their acres yield the greatest amount of produce with the least expenditure of means. They are often so crippled with debt and mortgages, paying high interest, that they can not introduce many improvements in agriculture, of which they are by no means ignorant. Nevertheless, the farmers here constitute a body of resident yeomen, industrious and intelligent ; absenteeism being almost unknown, owing to the great difficulty of letting farms, and the owners being spread equally over the whole country, to look after the roads and village-schools, and to see that there is a post-office even in each remote mountain hamlet. The pride and satisfaction felt by men who till the land which is their own, is, moreover, no small advantage, although one which a political economist, treating solely of the production of wealth, may regard as lying out of his province. As a make-weight, however, in our estimate of the amount of national happiness derived from landed property, it is not to be despised ; and where "every man is his own tenant," as at Conway, the evils of short leases, of ejectments on political grounds, or disputes about poaching and crimes connected with the game-laws are unknown.

After passing Conway, we had fairly entered the mountains of New Hampshire, and enjoyed some rambles over the hills, delighted with the sound of rushing torrents and the wildness of

the scenery. I had sometimes remarked in Norway that the birch trees are so equally intermixed with dark pines, as to impart, by the contrast of colors, a spotted appearance to the woods, not always picturesque ; but here I saw the dark green hemlock in one place, and the maples, with their brilliant autumnal foliage in another, grouped in such masses on the steep slopes of the hills, as to produce a most agreeable effect. There were many birch trees, with their white bark, and oaks, with red autumnal tints, and an undergrowth of kalmia out of flower, but still conspicuous by its shining leaves. The sweet fern (*Comptonia*) no longer appeared on this high ground, and was replaced by the true fern, called here "brake," being our common English species (*Pteris aquilina*). On the low hills of granite were many huge angular fragments of that rock, fifteen, and some of them twenty feet in diameter, resting on heaps of sand. They were of a light gray color, with large crystals of felspar, and reminded me of the granite of Arran in Scotland. As we followed the windings of the river Saco, I observed, in the bottom of the valley, alluvial terraces, composed of clay, sand, gravel, and boulders, forming flats at different elevations, as we see in many parts of Scotland, and other mountain valleys in Europe.

Although we heard much talk of the late frost, there were still abundant signs of the sun's power, such as large grasshoppers, with red wings, called here shakers, and tortoises (*Testudo picta*) wandering from one pond to another. In the retired paths many squirrels allowed us to pass very near to them without being alarmed. The bear once extended, like the beaver, over the whole of New England ; but the beaver has been every where extirpated, and the bear driven into the mountains. From these retreats they still make annual depredations on the fields of Indian corn, and the farmers retaliate, not only by thinning them with their rifles, but by taking what some sportsmen would consider a very unfair advantage over them. On the first spring-like day, Bruin, who has been hibernating for several months in a cave, ventures out, before the snow has quite melted, to take a look at the country ; then retires again to his hiding place, which the hunter discovers by following his foot tracks on the snow, and

digs him out of his hole. Near Bartlett I was taken to see the skeleton of a bear that had been lately killed. The farmers told me that the racoons do much damage here, by devouring the Indian corn, but the opossum does not extend so far to the north.

On the second day after leaving Conway we entered a wild and narrow mountain pass, with steep declivities on both sides, where the hills can not be less than 1000 or 1500 feet in vertical height. Here the famous landslip, called the Willey Slide, occurred in August, 1826. The avalanche of earth, stones, and trees occurring after heavy rains, was so sudden, that it overwhelmed all the Willey family, nine in number, who would have escaped had they remained in their humble dwelling; for, just above it, the muddy torrent was divided into two branches by a projecting rock. The day after the catastrophe a candle was found on the table of their deserted room, burnt down to the socket, and the Bible lying open beside it.

I was curious to examine the effects of this and other slides of the same date in the White Mountains, to ascertain what effect the passage of mud and heavy stones might have had in furrowing the hard surfaces of bared rocks over which they had passed; it having been a matter of controversy among geologists, how far those straight rectilinear grooves and scratches before alluded to,* might have been the result of glacial action, or whether they can be accounted for by assuming that deluges of mud and heavy stones have swept over the dry land. A finer opportunity of testing the adequacy of the cause last mentioned can not be conceived than is afforded by these hills; for, in consequence, apparently, of the jointed structure of the rocks and their decomposition produced by great variations of temperature (for they are subjected to intense summer heat and winter's cold in the course of the year), there is always a considerable mass of superficial detritus ready to be detached during very heavy rains, even where the steep slopes are covered with timber. Such avalanches begin from small points, and, after descending a few hundred yards, cut into the mountain side a deep trench, which becomes rapidly broader and deeper, and they bear down before them the loftiest

* Ante, p. 18.

trees, and the soil in which they are rooted. Some of these masses have slid two or three miles, with an average breadth of a quarter of a mile ; and so large are the rocky fragments, that I found some of them, which came down in the Willey Slide, to measure from fourteen to twenty feet in diameter. I also ascertained that the steep slopes of bare rock over which they had passed, were inclined, in some instances, at angles of twenty to thirty degrees with the horizon. After clambering up more than 400 feet above the level of the Saco, on its right bank, I reached a space of naked rock, fifteen feet square, over which my guide, the elder Crawford, told me that the whole contents of the Willey Slide had swept in 1826 ; which was indeed evident, for it lay in the direct line of the great trench cut through the forest above and below.

There is a small cataract at the spot, where a dyke of basalt and greenstone, four or five feet wide, traverses the granite, all the rocks being smoothed on the surface, and marked with some irregular and short scratches and grooves ; but not such as resemble in continuity, straightness, or parallelism, those produced by a glacier, where hard stones, which grate along the bottom, have been firmly fixed in a heavy mass of ice, so that they can not be deflected from a rectilinear course.

I am aware that glaciers and icebergs are not the only means by which the grooving and polishing of the faces of rocks may be caused ; for similar effects may arise on the sides of fissures where stony masses have been rent asunder, and moved upward and downward, or made to vibrate during earthquakes, so that the opposite walls are rubbed against each other. But we can not attribute to this cause the superficial markings now commonly referred to glacial action in Europe and North America ; and what I saw at the Willey Slide, and other places in the White Mountains, convinced me that a semi-fluid mass of mud and stones must always have too much freedom of motion, and is too easily turned aside by every obstacle and inequality in the shape of the rocky floor, to enable it to sculpture out long and straight furrows.

From the Willey Slide we continued our way along the bot-

tom of the narrow valley of the Saco, listening with pleasure to the river as it foamed and roared over its stony bed, and admiring two water-falls, broken into sheets of white foam in their descent. The scene became more grand as we entered the defile called the Notch, where, although the sun was high, the lofty crags threw dark shadows across our path. On either hand were wild and nearly perpendicular precipices, the road, on the side overhanging the Saco, being usually protected by parapets of stone or timber. A steep ascent led us up to a kind of pass or water-shed, where there was an inn kept by one of the Crawford family, well known in this region, which reminded me of some of those hotels perched in similar wild situations in the Alps, as on the Simplon and Grimsel. We learned that snow had fallen here in the second week of September, and the higher hills had been whitened for a time; but they are now again uncovered. Already the elevation has produced a marked change in the vegetation—the hemlock, the spruce, the balm of Gilead fir (*Pinus balsamea*), and the white pine, beginning to form, with the birch, a large proportion of the forest trees. The white pine, called in England the Weymouth pine (*Pinus strobus*), is the most magnificent in size. It sometimes attains a diameter of five feet, and a height of 150 feet, both here and in other parts of New Hampshire and Maine; but it is very rare to meet with such trees now, the finest having been burnt down in the great fires which have every where devastated the woods. I observed the boughs of the spruce hung with a graceful white lichen, called Old Man's Beard (*Usnea barbata*), a European species. The common fern (*Pteris aquilina*), now covers the moist ground under the dark shade of the woods, and all the rotting trunks of fallen trees are matted over with a beautiful green carpet of moss, formed almost entirely of the feathery leaves of one of the most elegant of the tribe, also occurring in Scotland (*Hypnum Crista castrensis*). Several kinds of club moss (*Lycopodium*), which, like the *Hypnum*, were in full fructification, form also a conspicuous part of the herbage; especially one species, standing erect like a miniature tree, whence its name, *L. dendroideum*, from six to eight inches high.

Oct. 5.—Penetrating still further into the mountains, we established ourselves in pleasant quarters for several days at Fabyan's Hotel, thirty-two miles from Conway, waiting for fine weather to ascend Mount Washington. Whenever the rain ceased for a few hours we explored the lower hills, and were fortunate enough to have, as a companion in our walks, one of the ablest botanists in America, Mr. William Oakes,* of Ipswich, Massachusetts, who is preparing for publication a fine work on the Flora of the White Mountains. In one of our excursions with him to see the falls of the river Amoonosuc, he showed us several places where the *Linnæa borealis* was growing, now in fruit. I had seen this plant in flower in Nova Scotia in July, 1842, but was not prepared to find it extending so much farther southward, having first known it as characteristic of Norway, and of great Alpine heights in Europe. But I was still more surprised when I learned, from Mr. Oakes, that it descends even into the wooded plains of New Hampshire, under favor of a long winter and of summer fogs, near the sea. What is most singular, between Manchester and Cape Anne, lat 42° 30' N., it inhabits the same swamp with the *Magnolia glauca*. The arctic *Linnæa*, trailing along the ground and protected from the sun by a magnolia, affords a curious example of the meeting of two plants of genera characteristic of very different latitudes, each on the extreme limits of its northern or southern range.

One evening, during our stay here, we enjoyed listening to the finest mountain echo I ever heard. Our host, Fabyan, played a few clear notes on a horn, which were distinctly repeated five times by the echo, in softened and melodious tones. The third repetition, although coming of course from a greater distance, was louder than the two first, which had a beautiful effect, and may be caused either by the concave form of the rocks being more favorable to the reflection of sound, or from the place where we stood being, in reference to that distant spot, more exactly in the focus of the ellipse.

In the elevated plain at the foot of the mountains at Fabyan's

* Since writing the above, I have heard, with deep regret, of the death of this amiable and accomplished naturalist.

there is a long superficial ridge of gravel, sand, and boulders, having the same appearance as those mounds which are termed "osar" in Sweden. It is a conspicuous object on the plain, and is called the Giant's Grave; but in general such geological appearances as are usually referred to the glacial or "drift" period are rare in these mountains; and I looked in vain for glacial furrows and striæ on a broad surface of smooth granite recently exposed on the banks of the Saco, in a pit where gravel had been taken out for the repair of the road. How far the rapid decomposition of the granite rocks, owing to the vast range of annual temperature, may have destroyed, in this high region, any markings originally imprinted on their surface, deserves consideration.

CHAPTER V.

Ascent of Mount Washington.—Mr. Oakes.—Zones of Distinct Vegetation.—Belt of Dwarf Firs.—Bald Region and Arctic Flora on Summit.—View from Summit.—Migration of Plants from Arctic Regions.—Change of Climate since Glacial Period.—Granitic Rocks of White Mountains.—Franconia Notch.—Revival at Bethlehem.—Millerite Movement.—The Tabernacle at Boston.—Mormons.—Remarks on New England Fanaticism.

Oct. 7, 1845.—AT length, with a fair promise of brighter weather, we started at eight o'clock in the morning for the summit of Mount Washington. Its old Indian name of Agiocochook has been dropped, as too difficult for Anglo-Saxon ears or memories. Its summit is 6225 feet above the level of the sea; and we were congratulated on the prospect of finding it, at so late a season, entirely free from snow. Our party consisted of nine, all mounted on well-trained horses—Mr. Oakes, a gentleman and his wife, tourists from Maine, a young New England artist, myself, my wife, and three guides.

A ride of seven miles brought us to the foot of the mountain, and we then began to thread the dark mazes of the forest, through narrow winding paths, often crossing and re-crossing the bed of the same torrent, and fording its waters, which occupied, in spite of the late rains, a small part of their channel.

The first, or lowest zone of the mountain, extending from its base to the height of about 2000 feet, and 4000 feet above the level of the sea, is clothed with a great variety of wood. Besides the hemlock, spruce, Weymouth, and other pines before mentioned, there is the beech (*Fagus ferruginea*), three kinds of birch, the black, the yellow, and the white (*Betula lenta*, *B. lutea*, and *B. papyracea*); also the rock or sugar-maple (*Acer saccharinum*), and the red maple (*A. rubrum*), exhibiting autumnal tints of every color, from orange to pale yellow, and from scarlet to purple. The undergrowth was composed in part of a Guelder-

rose (*Viburnum lantanoides*), the Mexican laurustinus, and the service-tree (*Sorbus americana*), with *Acer montanum* and *Acer striatum*. On the ground we saw the beautiful dwarf dogwood (*Cornus canadensis*), still in flower, also the fruit of the averin, or cloud-berry, here called mulberry (*Rubus chamaemorus*), well known on the Grampians, and the wood-sorrel (*Oxalis acetosella*), in great quantity, with *Gaultheria hispidula*. There were many large prostrate trees in various stages of decay, and out of their trunks young fir-saplings, which had taken root on the bark, were seen growing erect.

We put up very few birds as we rode along, for the woods are much deserted at this season. A small lapwing, with a note resembling the English species, flew up from some marshy ground; and we saw a blue jay and a brown woodpecker among the trees, and occasionally a small bird like a tomtit (*Parus atropillus*). I picked up one land-shell only (*Helix thyoides*), and was surprised at the scarcity of air-breathing testacea here and elsewhere in New England, where there is so vigorous a vegetation and so much summer heat. The absence of lime in the granitic rocks is the chief cause; but even in the calcareous districts these shells are by no means as plentiful as in corresponding latitudes in Europe.

When we had passed through this lowest belt of wood the clouds cleared away, so that, on looking back to the westward, we had a fine view of the mountains of Vermont and the Camel's Hump, and were the more struck with the magnificent extent of the prospect, as it had not opened upon us gradually during our ascent. We then began to enter the second region, or zone of evergreens, consisting of the black spruce and the *Pinus balsamea*, which were at first mixed with other forest trees, all dwarfed in height, till at length, after we had ascended a few hundred feet, these two kinds of firs monopolized the entire ground. They are extremely dense, rising to about the height of a man's head, having evidently been prevented by the cold winds from continuing their upward growth beyond the level at which they are protected by the snow. All their vigor seems to have been exerted in throwing out numerous strong horizontal

or pendent branches, each tree covering a considerable area, and being closely interwoven with others, so that they surround the mountain with a formidable hedge about a quarter of a mile broad. The innumerable dead boughs, which, after growing for a time, during a series of milder seasons, to a greater height, have then been killed by the keen blast, present a singular appearance. They are forked and leafless, and look like the antlers of an enormous herd of deer or elk. This thicket opposed a serious obstacle to those who first ascended the mountain thirty years ago. Dr. Francis Boott, among others, whose description of his ascent in 1816, given to me in London several years before, made me resolve one day to visit the scene, was compelled, with his companion, Dr. Bigelow, to climb over the tops and walk on the branches of these trees, until they came to the bald region. A traveler now passes so rapidly through the open pathway cut through this belt of firs, that he is in danger, while admiring the distant view, of overlooking its peculiarities. The trees become gradually lower and lower as you ascend, till at length they trail along the ground only two or three inches high; and I actually observed, at the upper margin of this zone, that the spruce was topped in its average height by the common reindeer moss (*Lichen rangeferinus*). According to Dr. Bigelow,* the upper edge of the belt of dwarf firs is at the height of 4443 feet above the sea. After crossing it we emerged into the bald region, devoid of wood, and had still to climb 1800 feet higher, before arriving at the summit. Here our long cavalcade was seen zigzagging its way in single file up a steep declivity of naked rock, consisting of gneiss and mica schist, but principally the latter rock intermixed with much white quartz. The masses of quartz are so generally overgrown with that bright-colored yellowish-green lichen, so common on the Scotch mountains (*Lichen geographicus*), that the whole surface acquires a corresponding tint, visible from a great distance. This highest region is characterized by an assemblage of Alpine or Arctic plants, now no longer in flower, and by a variety of mosses and

* See his excellent account of an ascent of Mount Washington in 1816, Boston Medical Journal, vol. v. p. 321.

lichens specifically identical with those of Northern Europe. Among these, we saw on the rocks the *Parmelia centrifuga*, a lichen common in Sweden, but not yet met with in Great Britain, of a greenish-white color, which, commencing its growth from a point, gradually spreads on all sides, and deserts the central space. It then assumes an annular form, and its reddish-brown shields of fructification, scattered over the margin, remind one, though on a miniature scale, of those "fairy rings" on our English lawns, which appear to be unknown in America, and where fungi, or mushrooms are seen growing in a circle.

The flora of the uppermost region of Mount Washington consists of species which are natives of the cold climate of Labrador, Lapland, Greenland, and Siberia, and are impatient, says Bigelow, of drought, as well as of both extremes of heat and cold; they are therefore not at all fitted to flourish in the ordinary climate of New England. But they are preserved here, during winter, from injury, by a great depth of snow, and the air in summer never attains, at this elevation, too high a temperature, while the ground below is always cool. When the snow melts, they shoot up instantly with vigor proportioned to the length of time they have been dormant, rapidly unfold their flowers, and mature their fruits, and run through the whole course of their vegetation in a few weeks, irrigated by clouds and mist.

Among other Alpine plants, we gathered on the summit *Menziesia cerulea*, and *Rhododendron laponicum*, both out of flower; and not far below, *Azalea procumbens*. Mr. Oakes pointed out to me, in a rent several hundred feet above the lower margin of the bald region, a spruce fir growing in the cleft of a rock, where it was sheltered from the winds, clearly showing that the sudden cessation of the trees does not arise from mere intensity of cold. We found no snow on the summit, but the air was piercing, and for a time we were enveloped in a cloud of dense white fog, which, sailing past us, suddenly disclosed a most brilliant picture. On the slope of the mountain below us, were seen woods warmly colored with their autumnal tints, and lighted up by a bright sun; and in the distance a vast plain, stretching eastward to Portland, with many silver lakes, and

beyond these the ocean and blue sky. It was like a vision seen in the clouds, and we were occasionally reminded of "the dissolving views," when the landscape slowly faded away, and then, in a few minutes, as the fog dispersed, regained its strength as gradually, till every feature became again clear and well defined.

We at length returned to the hotel in the dusk of the evening, much delighted with our excursion, although too fatiguing for a lady, my wife having been twelve hours on horseback. If an inn should be built at the foot of the mountain, the exploit will be comparatively an easy one, and in a few years a railway from Boston, only 150 miles distant (100 miles of it being already completed), will enable any citizen to escape from the summer heat, and, having slept the first night at this inn, enjoy, the next morning, if he is a lover of botany, the sight of a variety of rare and beautiful Arctic plants in full flower, besides beholding a succession of distinct zones of vegetation, scarcely surpassed on the flanks of Mount Etna or the Pyrenees.

If we attempt to speculate on the manner in which the peculiar species of plants now established on the highest summits of the White Mountains, were enabled to reach those isolated spots, while none of them are met with in the lower lands around, or for a great distance to the north, we shall find ourselves engaged in trying to solve a philosophical problem, which requires the aid, not of botany alone, but of geology, or a knowledge of the geographical changes which immediately preceded the present state of the earth's surface. We have to explain how an Arctic flora, consisting of plants specifically identical with those which now inhabit lands bordering the sea in the extreme north of America, Europe, and Asia, could get to the top of Mount Washington. Now geology teaches us that the species living at present on the earth are older than many parts of our existing continents; that is to say, they were created before a large part of the existing mountains, valleys, plains, lakes, rivers, and seas were formed. That such must be the case in regard to the island of Sicily, I announced my conviction in 1833, after first returning from that country.* And a similar conclusion is no

* Principles of Geology, 1st edition, vol. iii. chap. 9.

less obvious to any naturalist who has studied the structure of North America, and observed the wide area occupied by the modern or glacial deposits before alluded to,* in which marine fossil shells of living but northern species are entombed. It is clear that a great portion of Canada, and the country surrounding the great lakes, was submerged beneath the ocean when recent species of mollusca flourished, of which the fossil remains occur more than 500 feet above the level of the sea near Montreal. I have already stated that Lake Champlain was a gulf of the sea at that period, that large areas in Maine were under water, and, I may add, that the White Mountains must then have constituted an island, or group of islands. Yet, as this period is so modern in the earth's history as to belong to the epoch of the existing marine fauna, it is fair to infer that the Arctic flora now contemporary with man was then also established on the globe.

A careful study of the present distribution of animals and plants over the globe, has led nearly all the best naturalists to the opinion that each species had its origin in a single birth-place, and spread gradually from its original center, to all accessible spots fit for its habitation, by means of the powers of migration given to it from the first. If we adopt this view, or the doctrine of "specific centers," there is no difficulty in comprehending how the *cryptogamous* plants of Siberia, Lapland, Greenland, and Labrador scaled the heights of Mount Washington, because the sporules of the fungi, lichens, and mosses may be wafted through the air for indefinite distances, like smoke; and, in fact, heavier particles are actually known to have been carried for thousands of miles by the wind. But the cause of the occurrence of Arctic plants of the *phænogamous* class on the top of the New Hampshire mountains, specifically identical with those of remote Polar regions, is by no means so obvious. They could not, in the present condition of the earth, effect a passage over the intervening low lands, because the extreme heat of summer and cold of winter would be fatal to them. Even if they were brought from the northern parts of Asia, Europe, and America, and

* Ante, p. 33.

thousands of them planted round the foot of Mount Washington, they would never be able, in any number of years, to make their way to its summit. We must suppose, therefore, that originally they extended their range in the same way as the flowering plants now inhabiting Arctic and Antarctic lands disseminate themselves. The innumerable islands in the Polar seas are tenanted by the same species of plants, some of which are conveyed as seeds by animals over the ice when the sea is frozen in winter, or by birds; while a still larger number are transported by floating icebergs, on which soil containing the seeds of plants may be carried in a single year for hundreds of miles. A great body of geological evidence has now been brought together, to some of which I have adverted in a former chapter,* to show that this machinery for scattering plants, as well as for carrying erratic blocks southward, and polishing and grooving the floor of the ancient ocean, extended in the western hemisphere to lower latitudes than the White Mountains. When these last still constituted islands, in a sea chilled by the melting of floating ice, we may assume that they were covered entirely by a flora like that now confined to the uppermost or treeless region of the mountains. As the continent grew by the slow upheaval of the land, and the islands gained in height, and the climate around their base grew milder the Arctic plants would retreat to higher and higher zones, and finally occupy an elevated area, which probably had been at first, or in the glacial period, always covered with perpetual snow. Meanwhile the newly-formed plains around the base of the mountain, to which northern species of plants could not spread, would be occupied by others migrating from the south, and perhaps by many trees, shrubs, and plants then first created, and remaining to this day peculiar to North America.†

The period when the White Mountains ceased to be a group of islands, or when, by the emergence of the surrounding low

* Ante, p. 17.

† For speculations on analogous botanical and geographical changes in Europe, the reader may refer with advantage to an excellent essay by Professor Edward Forbes, on the Origin of the British Fauna and Flora, *Memoirs of Geol. Survey of Great Britain*, vol. i. p. 336. 1846.

lands, they first became connected with the continent, is, as we have seen, of very modern date, geologically speaking. It is, in fact, so recent as to belong to the epoch when species now contemporaneous with man already inhabited this planet. But if we attempt to carry our retrospect still farther into the past, and to go back to the date when the rocks themselves of the White Mountains originated, we are lost in times of extreme antiquity. No light is thrown on this inquiry by embedded organic remains, of which the strata of gneiss, mica schist, clay-slate, and quartzite are wholly devoid. These masses are traversed by numerous veins of granite and greenstone, which are therefore newer than the stratified crystalline rocks which they intersect; and the abrupt manner in which these veins terminate at the surface attests how much denudation or removal by water of solid matter has taken place. Another question of a chronological kind may yet deserve attention, namely, the epoch of the movements which threw the beds of gneiss and the associated rocks into their present bent, disturbed, and vertical positions. This subject is also involved in considerable obscurity, although it seems highly probable that the crystalline strata of New Hampshire acquired their internal arrangement at the same time as the fossiliferous beds of the Appalachian or Alleghany chain: and we know that they assumed their actual strike and dip subsequently to the origin of the coal measures, which enter so largely into the structure of that chain.

From Fabyan's Inn, at the foot of Mount Washington, we traveled about twenty-five miles westward to Bethlehem, and thence southward to the Franconia Notch, a deep and picturesque ravine in the mountains of granite. On the way I conversed with the driver of our carriage about the village churches, and, being very communicative, he told me he was a Free-will Baptist, but had only become a Christian five years ago, when he was awakened from a state of indifference by a revival which took place near Bethlehem. This meeting, he said, was got up and managed by the Methodists; but some Baptists, and one orthodox (Independent or Congregationalist) minister had assisted, in all sixteen ministers, and for twenty-one days in succession there

had been prayers and preaching incessantly from morning to night. I had already seen in a New York paper the following advertisement : " A protracted meeting is now in progress at the —— church in —— Street. There have been a number of conversions, and it is hoped the work of grace has but just commenced. Preaching every evening : seats free." I was surprised to hear of the union of ministers of more than one denomination on this occasion, and, on inquiry, was told by a Methodist, that no Episcopalians would join, " because they do not sufficiently rely on regeneration and the new man." It appears, indeed, to be essential to the efficacy of this species of excitement, that there should be a previous belief that each may hope at a particular moment " to receive comfort," as they term it, or that their conversion may be as sudden as was that of St. Paul. A Boston friend assured me that when he once attended a revival sermon, he heard the preacher describe the symptoms which they might expect to experience on the first, second, and third day previous to their conversion, just as a medical lecturer might expatiate to his pupils on the progress of a well-known disease ; and " the complaint," he added, " is indeed a serious one, and very contagious, when the feelings have obtained an entire control over the judgment, and the new convert is in the power of the preacher. He himself is often worked up to such a pitch of enthusiasm, as to have lost all command over his own heated imagination."

It is the great object of the ministers who officiate on these occasions to keep up a perpetual excitement ; but while they are endeavoring by personal appeals to overcome the apathy of dull, slow, and insensible minds, they run the risk of driving others, of weaker nerves and a more sensitive temperament, who are sitting on " the anxious benches," to the very verge of distraction.

My friend, the driver, was evidently one of a slow and unexcitable disposition, and had been led for the first time in his life to think seriously on religious matters by what he heard at the great preaching near Bethlehem ; but it is admitted, and deplored by the advocates of revivals, that after the application of such violent stimulants there is invariably a reaction, and what they

call a flat or dead season. The emotions are so strong as to exhaust both the body and mind ; and it is creditable to the New England clergy of all sects, that they have in general, of late years, almost entirely discontinued such meetings.

At the Franconia hotel I first heard of the recent fanatical movement of the Millerites, or followers of one Miller, who taught that the millennium, or final destruction of the world, would come to pass last year, or on the 23d day of October, 1844. A farmer from the village of Lisbon told me that, in the course of the preceding autumn, many of his neighbors would neither reap their harvest of Indian corn and potatoes, nor let others take in the crop, saying it was tempting Providence to store up grain for a season that could never arrive, the great catastrophe being so near at hand. These infatuated people, however, exerted themselves very diligently to save what remained of their property when the non-fulfillment of the prophecy dispelled their delusion. In several townships in this and the adjoining States, the parochial officers, or "select men," interfered, harvesting the crops at the public expense, and requiring the owners, after the 23d October, to repay them for the outlay.

I afterward heard many anecdotes respecting the Millerite movement, not a few of my informants speaking with marked indulgence of what they regarded simply as a miscalculation of a prophecy which must be accomplished at no distant date. In the township of Concord, New Hampshire, I was told of an old woman, who, on paying her annual rent for a house, said, "I guess this is the last rent you will get from me." Her landlord remarked, "If so, I hope you have got your robes ready;" alluding to the common practice of the faithful to prepare white ascension robes, "for going up into heaven." Hearing that there had been advertisements from shops in Boston and elsewhere to furnish any number of these robes on the shortest notice, I took for granted that they were meant as a hoax ; but an English bookseller, residing at New York, assured me that there was a brisk demand for such articles, even as far south as Philadelphia, and that he knew two individuals in New York, who sat up all night in their shrouds on the 22d of October.

A caricature, published at Boston, represented Miller, the originator of the movement, ascending to heaven in his robes ; but his chaplain, who was suspected of not being an enthusiast, but having an eye to the dollars freely thrown into "the Lord's Treasury," was weighed down by the money bags, and the devils were drawing him in an opposite direction. To keep up the excitement, several newspapers and periodicals were published in the interest of this sect, and I was told of several Methodist preachers who gave themselves up in full sincerity to the delusion. I asked an artisan who sat next me in a railway car in Massachusetts, whether he had heard any talk of the millennium in his district. "Certainly," he said ; "I remember a tonguey jade coming down to our town, and many women, and even some smart, likely men, were carried away by her preaching. And, when the day was past, Miller explained how they had made a miscalculation, and that the end of the world would come three days later ; and after that it was declared it would happen in the year 1847, which date was the more certain, because all the previous computations had failed, and that era alone remained to satisfy the prophecy."

In a subsequent part of our tour, several houses were pointed out to us, between Plymouth (Massachusetts) and Boston, the owners of which had been reduced from ease to poverty by their credulity, having sold their all toward building the Tabernacle, in which they were to pray incessantly for six weeks previous to their ascension. Among other stories which, whether true or not, proved to me how much fraud was imputed to some of the leaders, I was told of a young girl who, having no money, was advised to sell her necklace, which had been presented to her by her betrothed. The jeweler, seeing that she was much affected at parting with her treasure, and discovering the object of the sale, showed her some silver forks and spoons, on which he was about to engrave the initials of the very minister whose dupe she was, and those of the lady he was about to marry on a fixed day after the fated 23d of October.

The Tabernacle, above alluded to, was planned for the accommodation of between 2000 and 3000 persons, who were to meet,

pray, and "go up" at Boston; but, as it was intended merely for a temporary purpose, the fabric would have been very slight and insecure, had not the magistrates, fearing that it might fall into the street and kill some of the passers-by, interposed in good time, and required the architect to erect a substantial edifice. When the society of the Millerites was bankrupt, this Tabernacle was sold and fitted up as a theater; and there, in the course of the winter, we had the pleasure of seeing Mr. and Mrs. Kean perform *Macbeth*. Although under no apprehensions that the roof would fall in, yet, as all the seats were stuffed with hay, and there was only one door, we had some conversation during the performance as to what might be our chance of escape in the event of a fire. Only a few months later the whole edifice was actually burned to the ground, but fortunately no lives were lost. In one of the scenes of *Macbeth*, where Hecate is represented as going up to heaven, and singing, "Now I'm furnished for the flight—Now I fly," &c., some of our party told us they were reminded of the extraordinary sight they had witnessed in that room on the 23d of October of the previous year, when the walls were all covered with Hebrew and Greek texts, and when a crowd of devotees were praying in their ascension robes, in hourly expectation of the consummation of all things.

I observed to one of my New England friends, that the number of Millerite proselytes, and also the fact that the prophet of the nineteenth century, Joseph Smith, could reckon at the lowest estimate 60,000 followers in the United States, and, according to some accounts, 120,000, did not argue much in favor of the working of their plan of national education. "As for the Mormons," he replied, "you must bear in mind that they were largely recruited from the manufacturing districts of England and Wales, and from European emigrants recently arrived. They were drawn chiefly from an illiterate class in the western states, where society is in its rudest condition. The progress of the Millerites, however, although confined to a fraction of the population, reflects undoubtedly much discredit on the educational and religious training in New England; but since the year 1000, when all Christendom believed that the world was to come to an end,

there have never been wanting interpreters of prophecy, who have confidently assigned some exact date, and one near at hand, for the millennium. Your Faber on the Prophecies, and the writings of Croly, and even some articles in the Quarterly Review, helped for a time to keep up this spirit here, and make it fashionable. But the Millerite movement, like the recent exhibition of the Holy Coat at Treves, has done much to open men's minds; and the exertions made of late to check this fanatical movement, have advanced the cause of truth." He then went on to describe to me a sermon preached in one of the northeastern townships of Massachusetts, which he named, against the Millerite opinions, by the minister of the parish, who explained the doubts generally entertained by the learned in regard to some of the dates of the prophecies of Daniel, entered freely into modern controversies about the verbal inspiration of the Old and New Testament, and referred to several new works, both of German, British, and New England authors, which his congregation had never heard of till then. Not a few of them complained that they had been so long kept in the dark, that their minister must have entertained many of these opinions long before, and that he had now revealed them in order to stem the current of a popular delusion, and for expediency, rather than from the love of truth. "Never," said they, "can we in future put the same confidence in him again."

Other apologists observed to me, that so long as a part of the population was very ignorant, even the well-educated would occasionally participate in fanatical movements; "for religious enthusiasm, being very contagious, resembles a famine fever, which first attacks those who are starving, but afterward infects some of the healthiest and best-fed individuals in the whole community." This explanation, plausible and ingenious as it may appear, is, I believe, a fallacy. If they who have gone through school and college, and have been for years in the habit of listening to preachers, become the victims of popular fanaticism, it proves that, however accomplished and learned they may be, their reasoning powers have not been cultivated, their understandings have not been enlarged, they have not been trained in

habits of judging and thinking for themselves ; in fact, they are ill educated. Instead of being told that it is their duty carefully to investigate historical evidence for themselves, and to cherish an independent frame of mind, they have probably been brought up to think that a docile, submissive, and child-like deference to the authority of churchmen is the highest merit of a Christian. They have perhaps heard much about the pride of philosophy, and how all human learning is a snare. In matters connected with religion they have been accustomed blindly to resign themselves to the guidance of others, and hence are prepared to yield themselves up to the influence of any new pretender to superior sanctity who is a greater enthusiast than themselves.

CHAPTER VI.

Social Equality.—Position of Servants.—War with England.—Coalition of Northern Democrats, and Southern Slave-owners.—Ostracism of Wealth.—Legislators paid.—Envy in a Democracy.—Politics of the Country and the City.—Pledges at Elections.—Universal Suffrage.—Adventure in a Stage Coach.—Return from the White Mountains.—Plymouth in New Hampshire.—Congregational and Methodist Churches.—Theological Discussions of Fellow-Travelers.—Temperance Movement.—Post-Office Abuses.—Lowell Factories.

Oct. 10, 1845.—DURING our stay in the White Mountains, we were dining one day at the ordinary of the Franconia hotel, when a lawyer from Massachusetts pointed out to me “a lady” sitting opposite to us, whom he recognized as the chambermaid of an inn in the State of Maine, and he supposed “that her companion with whom she was talking might belong to the same station.” I asked if he thought the waiters, who were as respectful to these guests as to us, were aware of their true position in society. “Probably they are so,” he replied; “and, moreover, as the season is now almost over in these mountains, I presume that these gentlemen, who must have saved money here, will very soon indulge in some similar recreation, and make some excursion themselves.” He then entered into conversation with the two ladies on a variety of topics, for the sake of drawing them out, treating them quite as equals; and certainly succeeded in proving to me that they had been well taught at school, had read good books, and could enjoy a tour and admire scenery as well as ourselves. “It is no small gratification to them,” said he, “to sit on terms of equality with the silver fork gentry, dressed in their best clothes, as if they were in an orthodox meeting-house.” I complimented him on carrying out in practice the American theory of social equality. As he had strong anti-slavery feelings, and was somewhat of an abolitionist, he said, “Yes, but you must not forget they have no dash of negro

blood in their veins." I remarked, that I had always inferred from the books of English travelers in the United States, that domestic service was held as somewhat of a degradation in New England. "I remember the time," he answered, "when such an idea was never entertained by any one here; but servants formerly used to live with their master and mistress, and have their meals at the same table. Of late years, the custom of boarding separately has gained ground, and work in factories is now preferred. These are so managed, that the daughters of farmers, and sometimes of our ministers, look upon them as most respectable places, where in three or four years they may earn a small sum toward their dowry, or which may help to pay off a mortgage or family debt."

As, during our stay here, the tone of the newspapers from Washington was somewhat bellicose, and we were proposing to make a tour of eight months in the southern states, I asked my legal companion whether he was really apprehensive of a war about Oregon. "No," he said, "there may be big words and much blustering, and perhaps, before the storm blows over, a war panic; but there will be no rupture with England, because it is against the interest of the slave-owners; for you know, I presume, that we are governed by the South, and our southern chivalry will put their veto on a war of which they would have to bear the brunt." "If," said I, "you are ruled by the slave-owning states, you may thank yourselves for it, the numerical, physical, intellectual, and moral power being on the side of the free states. Why do you knock under to them?" "You may well ask that question," he replied; "and, as a foreigner, may not easily be made to comprehend the political thralldom in which we, the majority of northerners, are still held, but which can not, I think, last much longer. Hitherto the southern planters have had more leisure to devote to politics than our small farmers or merchants in the north. They are banded together as one man in defense of what they call their property and institutions. They have a high bearing, which, in Congress, often imposes on northern men much superior to them in real talent, knowledge, and strength of character. They are

often eloquent, and have much political tact, and have formed a league with the unscrupulous demagogues here, and, by uniting with them, rule the country. For example, the mass of our population were strongly opposed to the extension of slavery, and voted at first against the annexation of Texas, yet they have been cajoled into the adoption of that measure."

"Do the slave-owners," I asked, "give bribes to the chiefs of your democratic party?" "No, our electors have too much self-respect and independence to accept of money bribes; but, by joining with their southern allies, they get what one of their party had recently the effrontery to call 'the spoils of the victor.' They are promoted to places in the custom-house or post-office, or sent on a foreign mission, or made district attorneys, or a lawyer may now and then be raised even to the bench of the Supreme Court; not one who is positively incompetent, but a man who, but for political services, would never have been selected for the highest honors in his profession."

I next told my friend that, when traveling in Maine, I had asked a gentleman why his neighbor, Mr. A., a rich and well-informed man, was not a member of their Legislature, and he had replied, "Because he is known to have so much wealth, both in land and money, that, if he were to stand, the people would not elect him." "Is it then," I inquired, "an avowed principle of the democracy, that the rich are to be ostracised?" and I went on to say that, in a club to which I belonged in London, we had a servant who, though very poor, had a vote as proprietor of a house, all the apartments of which he let out to different lodgers. When he was questioned why, at two successive elections, he had voted for candidates of exactly opposite opinions in politics, he explained by saying, "I make it a rule always to vote with my first floor." "I presume that if he migrated to New Hampshire or Maine, he would vote with his garret, instead of his first floor?"

"I have no doubt," said my companion, "that such an elector would side with the powers that be; and as the democracy has the upper hand here, as in Maine, he would have paid as servile a homage to the dominant party on this side of the Atlantic as

he did to the aristocracy of wealth in your country. Do you desire to see our people regard wealth as a leading qualification for their representatives?"

"Surely," said I, "it is an evil that men of good abilities, of leisure, and independent station, who have had the best means of obtaining a superior education, should be excluded from public life by that envy which seems to have so rank a growth in a democracy, owing to the vain efforts to realize a theory of equality. It must be a defect in your system, if there is no useful career open to young men of fortune. They are often ruined, I hear, for want of suitable employments."

"There are," he said, "comparatively few of them in the United States, where the law of primogeniture no longer prevails; and if we have good-for-nothing individuals among them, it is no more than may be said of your own aristocracy." He then named an example or two of New Englanders, who, having inherited considerable property, had yet risen to political distinction, and several more (four of whom I myself knew), who, having made large fortunes by their talents, had been members either of the State Legislature of Massachusetts or of Congress. He did not, however, deny that it is often good policy, in an election, for a rich candidate to affect to be poorer than he is. "Every one of our representatives," he added, "whether in the State Legislatures or in Congress, receives a certain sum daily when on duty, besides more than enough traveling money for carrying him to his post and home again. In choosing a delegate, therefore, the people consider themselves as patrons who are giving away a place; and if an opulent man offers himself, they are disposed to say, 'You have enough already, let us help some one as good as you who needs it.'"

During my subsequent stay in New England, I often conversed with men of the working classes on the same subject, and invariably found that they had made up their mind that it was not desirable to choose representatives from the wealthiest class. "The rich," they say, "have less sympathy with our opinions and feelings; love their amusements, and go shooting, fishing, and traveling; keep hospitable houses, and are inaccessible when

we want to talk with them, at all hours, and tell them *how we wish them to vote.*" I once asked a party of New England tradesmen whether, if Mr. B., already an eminent public man, came into a large fortune through his wife, as might soon be expected, he would stand a worse chance than before of being sent to Congress. The question gave rise to a discussion among themselves, and at last they assured me that they did not think his accession to a fortune would do him any harm. It clearly never struck them as possible that it could do him any good, or aid his chance of success.

The chief motive, I apprehend, of preferring a poorer candidate, is the desire of reducing the members of their Legislature to mere delegates. A rich man would be apt to have an opinion of his own, to be unwilling to make a sacrifice of his free agency; he would not always identify himself with the majority of his electors, condescend to become, like the wires of the electric telegraph, a mere piece of machinery for conveying to the Capitol of his State, or to Washington, the behests of the multitude. That there is, besides, a vulgar jealousy of superior wealth, especially in the less educated districts and newer states, I satisfied myself in the course of my tour; but in regard to envy, we must also bear in mind, on the other hand, that they who elevate to distinction one of their own class in society, have sometimes to achieve a greater victory over that passion than when they confer the same favor on one who occupies already, by virtue of great riches, a higher position.

In reference also to pledges exacted from representatives at an election, I am bound to mention some spirited letters which I saw published by Whig candidates in Massachusetts, who carried their election in spite of them. From one of these I quote the following words; "I must decline giving a direct reply to your specific questions; my general conduct and character as a public man, must be your guarantee. My votes are on record, my speeches are in print; if they do not inspire confidence, no pledges or declarations of purpose ought to do so."

It was part of General Jackson's policy, openly avowed by him in several of his presidential addresses, to persuade the small

farmers, mechanics, and laborers that they constituted the people, were the bone and sinew of the country, the real possessors of the national wealth, although in their hands it is subdivided into small shares ; and he told them it was their business to make a constant effort to maintain their rights against the rich capitalists and moneyed corporations, who, by facilities of combining together, could usually make their own class interests prevail against a more numerous body, and one possessed in the aggregate of greater wealth.

It seems that they were not slow in taking this advice, for many merchants complained to me that the small farmers had too great an ascendancy. No feature, indeed, appeared to me more contrasted in the political aspect of America and Great Britain than this, that in the United States the democracy derives its chief support from the landed interest, while the towns take the more conservative side, and are often accused by the landed proprietors of being too aristocratic. Every where the ambition of accumulating riches without limit is so manifest, as to incline me to adopt the opinion expressed to me by several rich Boston friends, that wealth has in this country quite as many charms, and confers as much distinction and influence, as it ought to do. If a rich Englishman came to settle here, he would be disappointed on finding that money gave him no facilities in taking a lead in politics ; but the affluent natives do not pine for influence which they never possessed or expected to derive from their riches.

The great evil of universal suffrage is the irresistible temptation it affords to a needy set of adventurers to make politics a trade, and to devote all their time to agitation, electioneering, and flattering the passions of the multitude. The natural aristocracy of a republic consists of the most eminent men in the liberal professions—lawyers, divines, and physicians of note, merchants in extensive business, literary and scientific men of celebrity ; and men of all these classes are apt to set too high a value on their time, to be willing to engage in the strife of elections perpetually going on, and in which they expose themselves to much calumny and accusations, which, however unfounded, are professionally injurious to them. The richer citizens, who might be more in-

dependent of such attacks, love their ease or their books, and from indolence often abandon the field to the more ignorant ; but I met with many optimists who declared that whenever the country is threatened with any great danger or disgrace, there is a right-minded majority whose energies can be roused effectively into action. Nevertheless, the sacrifices required on such occasions to work upon the popular mind are so great, that the field is in danger of being left open, on all ordinary occasions, to the demagogue.

When I urged these and other objections against the working of their republican institutions, I was sometimes told that every political system has its inherent vices and defects, that the evil will soon be mitigated by the removal of ignorance and the improved education of the many. Sometimes, instead of an argument, they would ask me whether any of the British colonies are more prosperous in commerce, manufactures, or agriculture, or are doing as much to promote good schools, as some even of their most democratic states, such as New Hampshire and Maine ? “ Let our institutions,” they said, “ be judged of by their fruits.” To such an appeal, an Englishman as much struck as I had been with the recent progress of things in those very districts, and with the general happiness, activity, and contentment of all classes, could only respond by echoing the sentiment of the Chancellor Oxenstiern, “ *Quam parvâ sapientiâ mundus gubernatur.*” How great must be the amount of misgovernment in the world in general, if a democracy like this can deserve to rank so high in the comparative scale !

Oct. 10.—In the stage coach, between Franconia and Plymouth, in New Hampshire, we were at first the only inside passengers ; but about half way we met on the road two men and two women, respectably dressed, who might, we thought, have come from some of the sea-ports. They made a bargain with the driver to give them inside seats at a cheap rate. As we were annoyed by the freedom of their manners and conversation, I told the coachman, when we stopped to change horses, that we had a right to protection against the admission of company at half price, and, if they went on further, I must go on the outside with

my wife. He immediately apologized, and went up to the two young men and gave them their choice to take their seats behind him or be left on the road. To my surprise, they quietly accepted the former alternative. The ladies, for the first half mile, were mute, then burst out into a fit of laughter, amused at the ludicrous position of their companions on the outside, who were sitting in a pelting rain. They afterward behaved with decorum, and I mention the incident because it was the only unpleasant adventure of the kind which we experienced in the course of all our travels in the United States. In general, there is no country where a woman could, with so much comfort and security, undertake a long journey alone.

As we receded from the mountains, following the banks of the river Pemigewasset, the narrow valley widened gradually, till, first, a small, grassy, alluvial flat, and, at length, some cultivated fields, intervened between the stream and the boundary rocks of mica schist and granite. Occasionally the low river-plain was separated from the granite by a terrace of sand and gravel. Usually many boulders, with a few large detached blocks, some of them nine feet in diameter, were strewed over the granite rocks. These, as generally throughout New England, break out here and there, from beneath their covering of drift, in smooth bosses, or rounded, dome-shaped forms, called in the Alps "*roches moutonnées*." The contrast is very picturesque between the level and fertile plain and the region of lichen-covered rock, or sterile, quartzose sand, partially clothed with the native forest, now in its autumnal beauty, and lighted up by a bright sun. On the flat ground bordering the river, we passed many wagons laden with yellow heads of Indian corn, over which were piled many a huge pumpkin of a splendid reddish orange color. These vehicles were drawn by oxen, with long horns spreading out horizontally.

We stopped for the night in an inland village on which the maritime name of Plymouth has been bestowed. Here we spent a Sunday. There were two meeting-houses in the place, one Congregational and the other Methodist, which shared between them, in nearly equal proportions, the whole population of the

township. We went with our landlord first to one, and then, in the afternoon, to the other. Each service lasted about seventy minutes, and they were so arranged that the first began at half-past ten, and the second ended at two o'clock, for the convenience of the country people, who came in vehicles of all kinds, many of them from great distances. The reading, singing, and preaching would certainly not suffer by comparison with the average service in rural districts in churches of the Establishment in England. The discourse of the Methodist, delivered fluently without notes, and with much earnestness, kept his hearers awake ; and once, when my own thoughts were wandering, they were suddenly recalled to the pulpit by the startling question—whether, if some intimate friend, whom we had lost, should return to us from the world of spirits, his message would produce more effect on our minds than did the raising of Lazarus on the Jews of old ? He boldly affirmed that it would not. I began to think how small would be the sensation created by a miracle performed in the present day in Syria and many Eastern countries, especially in Persia, where they believe in the power of their own holy men occasionally to raise persons from the dead, in comparison to its effect in New England ; and how readily the Jews of old believed in departures from the ordinary course of nature, by the intervention of evil spirits or the power of magic. But I presume the preacher merely meant to say, and no doubt his doctrine was true, that a voice or sign from Heaven would no more deter men from sinning, than do the clear dictates of their consciences, in spite of which they yield to temptation.

In the evening I walked on a roofed wooden bridge, resembling many in Switzerland, which here spans the Pemigewasset, and the keeper of it told me how the whole river is frozen over in winter, but the ice being broken by the falls above, does not carry away the bridge. He also related how his grandfather, who had lived to be an old man, had gone up the river with an exploring party among the Indians, and how there was a bloody battle at the forks above, where the Indians were defeated, after great slaughter on both sides.

On entering the stage coach the next morning, on our way

south, we had two inside fellow-travelers with us. One of them was a blacksmith of Boston, and the other a glover of Plymouth. After conversing on the price of agricultural implements, they fell into a keen controversy on several biblical questions. After mentioning instances of great longevity in New Hampshire, the glover raised the question, whether the antediluvian patriarchs really lived seven or eight centuries, or whether, as he supposed, we were to take these passages in a "mythical sense." "For his part, he thought we might, perhaps, interpret them to mean that the family stock, or dynasty, of a particular patriarch, endured for those long periods." He also went on to say, that the Deluge did not cover the highest mountains literally, but only figuratively. Against these latitudinarian notions the blacksmith strongly protested, declaring his faith in the literal and exact interpretation of the sacred record; but at the same time treating his antagonist as one who had a right to indulge his own opinions. As soon as there was a pause in the conversation, I asked them if they approved of a frequent change of ministers, such as I found to prevail in New England—the Methodists remaining only two years, and the Congregationalists only four or six at the utmost, in one parish. They seemed much surprised to learn from me, that in England we thought a permanent relation between the pastor and his flock to be natural and desirable. Our people, they observed, are fond of variety, and there would always be danger, when they grew tired of a preacher, of their running after others of a different sect. "Besides," said the blacksmith, "how are they to keep up with the reading of the day, and improve their minds, if they remain forever in one town? They have first their parish duties, then they are expected to write two new sermons every week, usually referring to some matters of interest of the day; but if they have a call to a new parish, they not only gain new ideas, but much leisure, for they may then preach over again their old sermons."

He then told me that he had not visited New Hampshire for ten years, and was much struck with the reform which, in that interval, the temperance movement had worked in the hotels and habits of the people. Mr. Mason, an eminent lawyer of Boston,

since dead, with whom I afterward spoke on the same subject, informed me that much stronger measures had been taken in Massachusetts, where the Legislature first passed a law, that no rum or ardent spirits should be sold without a license, and then the magistrates in many townships resolved that within their limits no licenses should be granted. "A most arbitrary proceeding," he said, "and perhaps unconstitutional; for the Federal Government levies a duty on the importation of spirits, and this is a blow struck at their revenue. But you can have no idea," he added, "how excess in drinking ruins the health in this climate. I have just been reading the life of Lord Eldon, and find that he was able, when in full work, to take with impunity a bottle of port a day, which would kill any sedentary New Englander in three years."

We left the stage when we reached the present terminus of the Boston railway at Concord, and, anxious for letters from England, went immediately to the post-office, where they told us that the post-bag had been sent by mistake to Concord in Massachusetts, the letters of that township having been forwarded to this place. Such blunders are attributable to two causes, for both of which the practical good sense of the American people will, it is hoped, soon find a cure. Synonymous appellations might be modified by additions of north and south, east and west, &c.; and the General Post-office might publish a directory, and prohibit the future multiplication of the same names in a country where not only new towns, but new states are every day starting into existence. The other evil is a political one; the practice first, I am told, carried out unscrupulously during the presidency of General Jackson, of regarding all placemen, down to subordinate officials, such as the village post-master, as a body of electioneering agents, who must support the Federal Government. They who happen, therefore, to be of opposite opinions, must turn out as often as there is a change of ministry. On more than one occasion I have known the stage make a circuit of several miles in Massachusetts, to convey the mail to the postmaster's residence, because, forsooth, in the said village, all the houses which lay in the direct road belonging to trustworthy

men, were those of Whigs. In short, the mail, like the cabinet at Washington, had to go out of its way to hunt up a respectable democrat, and he, when found, has to learn a new craft. By leaving such places to the patronage of each state, this class of abuses would be much lessened.

Oct. 14.—Next morning we received all our letters from England, only a fortnight old, and had time to travel seventy-five miles by railway to Boston before dark. When I took out the tickets they told me we had no time to lose, saying, "Be as spry as you can," meaning "quick," "active." From the cars we saw the Merrimack at the rapids, foaming over the granite rocks; and, when I reflected on the extent of barren country all round us, and saw many spaces covered with loose, moving sands, like the dunes on the coast, I could not help admiring the enterprise and industry which has created so much wealth in this wilderness. We were told of the sudden increase of the new town of Manchester, and passed Lowell, only twenty-five years old, with its population of 25,000 inhabitants, and its twenty-four churches and religious societies. Some of the manufacturing companies here have given notice that they will employ no one who does not attend divine worship, and whose character is not strictly moral. Most of the 9000 factory girls of this place, concerning whom so much has been written, ought not to be compared to those of England, as they only remain five or six years in this occupation, and are taken in general from a higher class in society. Bishop Potter, in his work entitled "The School," tells us (p. 119) "that in the Boott factory there were about 950 young women employed for five and a half years, and that only one case was known of an illegitimate birth, and then the mother was an Irish emigrant."

I was informed by a fellow-traveler that the joint-stock companies of Lowell have a capital of more than two millions sterling invested. "Such corporations," he said, "are too aristocratic for our ideas, and can combine to keep down the price of wages." But one of the managers, in reply, assured me that the competition of rival factories is great, and the work-people pass freely from one company to another, being only required to

sign an agreement to give a fortnight's notice to quit. He also maintained that, on the contrary, they are truly democratic institutions, the shares being as low as 500 dollars, and often held by the operatives, as some of them were by his own domestic servants. By this system the work-people are prevented from looking on the master manufacturers as belonging to a distinct class, having different interests from their own. The holders of small shares have all the advantages of partners, but are not answerable for the debts of the establishment beyond their deposits. They can examine all the accounts annually, when there is a public statement of their affairs.

An English overseer told me that he and other foremen were receiving here, and in other New England mills, two dollars and two and a half dollars a day (8s. 6*d.* and 10s. 6*d.*).

CHAPTER VII.

Plymouth, Massachusetts.—Plymouth Beach.—Marine Shells.—Quicksand.—Names of Pilgrim Fathers.—Forefathers' Day.—Pilgrim Relics.—Their Authenticity considered.—Decoy Pond.—A Barn Traveling.—Excursion to Salem.—Museum.—Warrants for Execution of Witches.—Causes of the Persecution.—Conversation with Colored Abolitionists.—Comparative Capacity of White and Negro Races.—Half Breeds and Hybrid Intelleicts.

Oct. 15, 1845.—AFTER spending a day in Boston, we set out by stage for Plymouth, Massachusetts, thirty-eight miles in a southwest direction, for I wished to see the spot where the Pilgrim Fathers landed, and where the first colony was founded in New England. In the suburbs of Boston we went through some fine streets called the South Cove, the houses built on piles, where I had seen a marsh only three years ago. It was a bright day, and, as we skirted the noble bay, the deep blue sea was seen enlivened with the white sails of vessels laden with granite from the quarries of Quincy, a village through which we soon afterward passed.

When we had journeyed eighteen miles into the country I was told we were in Adams-street, and afterward, when in a winding lane with trees on each side, and without a house in sight, that we were in Washington-street. But nothing could surprise me again after having been told one day in New Hampshire, when seated on a rock in the midst of the wild woods, far from any dwelling, that I was in the exact center of the town.

“God made the country, and man made the town,”

sang the poet Cowper: and I can well imagine how the village pupils must be puzzled until the meaning of this verse has been expounded to them by the schoolmaster.

On the whole, the scenery of the low granitic region bordering the Atlantic in New England preserves a uniform character over a wide space, and is without striking features; yet occasionally the landscape is most agreeable. At one time we skirted a

swamp bordered by red cedars ; at another a small lake, then hills of barren sand, then a wood where the sumach and oak, with red and yellow fading leaves, were mixed with pines ; then suddenly a bare rock of granite or gneiss rises up, with one side quite perpendicular, fifteen or twenty-five feet high, and covered on its summit with birch, fir, and oak.

We admired the fine avenues of drooping elms in the streets of Plymouth as we entered, and went to a small old-fashioned inn called the Pilgrim House, where I hired a carriage, in which the landlord drove us at once to see the bay and visit Plymouth beach. This singular bar of sand, three miles long, runs across part of the bay directly opposite the town, and, two miles distant from it, serving as a breakwater to the port ; in spite of which the sea has been making great inroads, and might have swept away all the wharves but for this protection. As the bar was fast wasting away, the Federal Government employed engineers to erect a wooden framework, secured with piles, a mile long, which has been filled with stones, and which has caused an accumulation of sand to take place. This beach reminded me of the bar of Hurst Castle, in Hampshire ; and in both cases a stream enters the bay where the beach joins the land. It is well known that the Plymouth bar was a narrow neck of land eighty years ago ; and one of the inhabitants told me that when a boy he had gathered nuts, wild grapes, and plums there. Even fifty years ago some stumps of trees were still remaining, whereas nothing now can be seen but a swamp, a sea-beach, and some shoals adjoining them. Here I spent an hour with my wife collecting shells, and we found eighteen species, twelve peculiar to America, and six common to Europe ; namely, *Buccinum undatum*, *Purpura lapillus*, *Mya arenaria*, *Cypripina islandica*, *Modiola papuana*, and *Mytilus edulis*, all species which have a high northern range, and which, the geologist will remark, are found fossil in the drift or glacial deposits both of North America and Europe, and have doubtless continued to inhabit both hemispheres from that era. South of Cape Cod the mollusca are so different from the assemblage inhabiting the sea north of that cape, that we may consider it as the limit of two provinces of marine testacea.

The most conspicuous shell scattered over the smooth sands was the large and ponderous *Macra solidissima*, some specimens of which were six inches and a half in their greatest length, and much larger and heavier than any British bivalve. The broad and deep muscular impression in the interior of each valve is indicative of a great power of clasping; and I was assured by a good zoologist of Boston that this mollusk has been known to close upon the coot, or velvet duck (*Fuligula fusca*), and the blue-winged teal (*Anas discors*), when they have been feeding on them, holding these feathered enemies so fast by the beak or claw, that the tide has come up and drowned them.

After we had been some time engaged in collecting shells, we turned round and saw the horses of our vehicle sinking in a quicksand, plunging violently, and evidently in the greatest terror. For a few minutes our landlord, the driver, expected that they and the carriage and himself would have been swallowed up; but he succeeded at last in quieting them, and after they had rested for some time, though still trembling, they had strength enough to turn round, and by many plunges to get back again to a firm part of the beach.

The wind was bitterly cold, and we learned that on the evening before the sea had been frozen over near the shore; yet it was two months later when, on the 22d of December, 1620, now called Forefathers' Day, the Pilgrims, consisting of 101 souls, landed here from the Mayflower. No wonder that half of them perished from the severity of the first winter. They who escaped seem, as if in compensation, to have been rewarded with unusual longevity. We saw in the grave-yard the tombs of not a few whose ages ranged from seventy-nine to ninety-nine years. The names inscribed on their monuments are very characteristic of Puritan times, with a somewhat grotesque mixture of other very familiar ones, as Jerusha, Sally, Adoniram, Consider, Seth, Experience, Dorcas, Polly, Eunice, Eliphalet, Mercy, &c. The New Englanders laugh at the people of the "Old Colony" for remaining in a primitive state, and are hoping that the railroad from Boston, now nearly complete, may soon teach them to go a-head. But they who visit the town for the sake of old

associations, will not complain of the antique style of many of the buildings, and the low rooms with paneled walls, and huge wooden beams projecting from the ceilings, such as I never saw elsewhere in America. Some houses built of brick brought from Holland, notwithstanding the abundance of brick-earth in the neighborhood, were pointed out to us in Leyden-street, so called from the last town in Europe where the pilgrims sojourned after they had been driven out of their native country by religious persecution. In some private houses we were interested in many venerated heir-looms, kept as relics of the first settlers, and among others an antique chair of carved wood, which came over in the Mayflower, and still retains the marks of the staples which fixed it to the floor of the cabin. This, together with a seal of Governor Winslow, was shown me by an elderly lady, Mrs. Haywood, daughter of a Winslow and a White, and who received them from her grandmother. In a public building, called Pilgrim Hall, we saw other memorials of the same kind ; as, for example, a chest or cabinet, which had belonged to Peregrine White, the first child born in the colony, and which came to him from his mother, and had been preserved to the fifth generation in the same family, when it was presented by them to the Museum. By the side of it was a pewter dish, also given by the White family. In the same collection, they have a chair brought over in the Mayflower, and the helmet of King Philip, the Indian chief, with whom the first settlers had many a desperate fight.

A huge fragment of granite, a boulder which lay sunk in the beach, has always been traditionally declared to have been the exact spot which the feet of the Pilgrims first trod when they landed here ; and part of this same rock still remains on the wharf, while another portion has been removed to the center of the town, and inclosed within an iron railing, on which the names of forty-two of the Pilgrim Fathers are inscribed. They who can not sympathize warmly with the New Englanders for cherishing these precious relics, are not to be envied, and it is a praiseworthy custom to celebrate an annual festival, not only here, but in places several thousand miles distant. Often at

New Orleans, and in other remote parts of the Union, we hear of settlers from the North meeting on the 22d of December to commemorate the birth-day of New England; and when they speak fondly of their native hills and valleys, and recall their early recollections, they are drawing closer the ties which bind together a variety of independent States into one great confederation.

Colonel Perkins, of Boston, well known for his munificence, especially in founding the Asylum for the Blind, informed me, in 1846, that there was but one link wanting in the chain of personal communication between him and Peregrine White, the first white child born in Massachusetts, a few days after the Pilgrims landed. White lived to an advanced age, and was known to a man of the name of Cobb, whom Colonel Perkins visited, in 1807, with some friends who yet survive. Cobb died in 1808, the year after Colonel Perkins saw him. He was then blind; but his memory fresh for every thing which had happened in his manhood. He had served as a soldier at the taking of Louisbourg in Cape Breton, in 1745, and remembered when there were many Indians near Plymouth. The inhabitants occasionally fired a cannon near the town to frighten them, and to this cannon the Indians gave the name of "Old Speakum."

When we consider the grandeur of the results which have been realized in the interval of 225 years, since the Mayflower sailed into Plymouth harbor—how in that period a nation of twenty millions of souls has sprung into existence and peopled a vast continent, and covered it with cities, and churches, schools, colleges, and railroads, and filled its rivers and ports with steamboats and shipping—we regard the Pilgrim relics with that kind of veneration which trivial objects usually derive from high antiquity alone. For we measure time not by the number of arithmetical figures representing years or centuries, but by the importance of a long series of events, which strike the imagination. When I expressed these sentiments to a Boston friend, he asked me, "Why, then, may we not believe in the relics of the early Christians displayed at Rome, which they say the mother of Constantine brought home from the Holy Land only three cen-

turies after Christ—such, for example, as the true cross, the cradle in which the infant Jesus lay, the clothes in which he was wrapped up, and the table on which the last Supper was laid? The Puritans also believed, as do their descendants, that they were suffering in the cause of religious truth, and this feeling may have imparted additional sanctity to all memorials of their exile and adventures; yet how incomparably greater must have been the veneration felt by the early Christians for all that belonged to their divine teacher!" These observations led me to dwell on the relative authenticity of the relics in the two cases—the clearness of the historical evidence in the one, its worthlessness in the other. It has been truly said that the strength of every chain of historical testimony, like that of a chain of brass or iron, must be measured by the force of its weakest link. The earliest links in every traditional tale are usually the weakest; but in the case of the sacred objects said to have been obtained by Queen Helena, there are more links absolutely wanting, or a greater chasm of years without any records whatever, than the whole period which separates our times from those of the Pilgrim Fathers. The credulity of Helena, the notorious impostures of the monks of her age, the fact that three centuries elapsed before it was pretended that the true cross had been preserved, and another century before it was proved to be genuine by miracles, and a still further lapse of time before all doubt was set at rest by the resuscitation of a dead person—the extravagance of supposing that the Christians, when they escaped with difficulty from Jerusalem, just before the siege, should have carried with them in their flight so cumbersome a piece of furniture as the table, have all been well exposed.* But in regard to the genuineness of all the Pilgrim treasures shown me at Plymouth and elsewhere I indulged entire faith, until one day my confidence was disturbed in the Museum at Salem. A piece of furniture which came over in the Mayflower was pointed out to me, and the antiquary who was my guide remarked, that as the wood of the true cross, scattered over Christendom, has been said to be plentiful enough to build a man-of-war, so it might be doubted whether a ship of the line would

* *Second Travels of an Irish Gentleman*, 1833, vol. ii. p. 186.

contain all the heavy articles which freighted the Mayflower in her first voyage, although she was a vessel of only 180 tons. I immediately recollected a large heavy table, which I had seen in 1842, in the rooms of the Historical Society at Boston, which they told me had come over in the Mayflower, and my attention had been called to the marks of the staples which fixed it to the cabin floor. I accordingly returned to that Museum, and found there the sword of Elder Brewster, as well as that with which Colonel Church cut off King Philip's ear, and the gun with which that formidable Indian warrior was shot. The heavy table, too, was there, measuring two feet six inches in height, six feet in length, and five feet in breadth, and I asked Mr. Savage, the President of the Society, how they obtained it. It had certainly belonged, he said, to Governor Carver, but reasonable doubts were entertained whether it had ever been brought to New England in the Mayflower, especially in the month of December, 1620; "for you are aware," he added, "that the Mayflower made several voyages, and at each trip imported many valuables of this kind." In an instant, more than half my romance about the Pilgrim relics was dispelled. They lost half the charms with which my implicit faith had invested them, for I began to consider how many of the chairs and tables I had gazed upon with so much interest, might have been "made to order," by cabinet makers in the old country, and sent out to the new colonists. Byron has said—

☛ There's not a joy this world can give like that it takes away ;"

and some may think the same of certain lines of historical research. I must, however, declare my firm belief that some of the articles shown me at Plymouth are true and genuine relics of the olden time—treasures which really accompanied the heroic band who first landed on the beach of Plymouth Bay, and which deserve to be handed down with reverential care to posterity.

On our way back from Plymouth to Boston, we passed near the village of East Weymouth, by a decoy pond, where eight wild geese, called Canada geese, had been shot since the morning. Swimming in the middle of a sheet of water was a tame

goose, having one leg tied by a string to a small leaden weight ; and near it were a row of wooden imitations of geese, the sight of which, and the cries of the tame goose, attract the wild birds. As soon as they fly down they are shot by sportsmen of a true New England stamp, not like the Indian hunters, impatient of a sedentary life or steady labor, but industrious cobblers, each sitting all day at his own door, with his loaded gun lying by his side, his hands occupied in stitching "russet brogans" or boots for the southern negroes, to be sold at the rate of twenty cents, or tenpence a pair. After working an hour or two, he seizes his gun, and down comes a goose, which may fetch in the Boston market, in full season, two and a half dollars—the value of a dozen pair of brogans.

As we approached the capital, we met a large wooden barn drawn by twenty-four oxen. It was placed on rollers, which were continually shifted from behind forward, as fast as the barn passed over them. The removal of this large building had become necessary, because it stood directly in the way of the new railway from Boston to Plymouth, which is to be opened in a few weeks. A fellow-traveler told us of a wooden meeting-house in Hadley, which had been transferred in like manner to a more populous part of the township. "In English steeple-chases," said he, "the church itself, I believe, does not take part?"

Nov. 6.—Made an excursion to the seaport of Salem, about fourteen miles to the N.E. of Boston, a place of 17,000 inhabitants.

Dr. Wheatland, a young physician, to whom I had gone without letters of introduction, politely showed us over the Museum of Natural History, of which he was curator ; and over another full of articles illustrative of the arts, manners, and customs of the East Indies, China, and Japan ; for this city is a great resort of retired merchants and sea-captains. In both collections there are a variety of objects which may appear, on a hasty view, to form a heterogeneous and unmeaning jumble, but which are really curious and valuable. Such repositories ought to accompany public libraries in every large city, for they afford a kind of instruction which can not be obtained from books. To

public lectures, which are much encouraged here, and are effective means of stimulating the minds of all classes, especially the middle and lower, they furnish essential aid. Among other specimens of natural history, too large to be conveniently accommodated in any private house, I was glad of an opportunity of examining the great jaw-bones and teeth of the *Squalus serridens*, from the South Seas, which reminded me, by their serrated outline, of the teeth of the fossil *Zeuglodon*, hereafter to be mentioned. I was well pleased to observe that the shells of the neighboring coast had not been neglected, for people are often as ignorant of the natural history of the region they inhabit, especially of the lakes, rivers, and the sea, as of the flora and fauna of the antipodes. Many curious log-books of the early sea-captains of this port, who ventured in extreme ignorance of geography on distant voyages, are preserved here, and attest the daring spirit of those hardy navigators. Some of them sailed to India by the Cape, without a single chart or map, except that small one of the world, on Mercator's projection, contained in Guthrie's Geography. They used no sextants, but, working their dead-reckoning with chalk on a plank, guessed at the sun's position with their hand at noon. They had usually no capital, but started with a few beads and trinkets, and in exchange for these trifles often obtained the skins of sea-otters in the Oregon territory, each worth no less than 100 dollars. They also obtained sandal-wood in the Sandwich Islands, and bartered these and other articles in China for tea. On such slender means, and so lately as after the separation of the colonies from England, at a time when there was not a single American ship of war in the Indian or Chinese seas to protect their commerce, did many merchants of Boston and Salem lay the foundations of the princely fortunes they now enjoy.

In the course of the day we visited the court-house at Salem, where they keep the warrants issued by the judges to the high-sheriff in the years 1692 and 1693, for the execution of witches condemned to death. Here we read the depositions of witnesses, attesting such facts as that heifers and horses had died, and that cats had been taken ill, and that a man had been pierced by a knitting-needle to the depth of four inches, the wound healing

the instant the witch had been taken up. A bottle is preserved, which had been handed in to the Court at the time of the trial, full of pins, with which young women had been tormented. Some of the girls, from whose bodies these pins had been extracted, afterward confessed to a conspiracy. In the evening we walked to the place called Gallows Hill, in the suburbs of the city, where no less than nineteen persons were hanged as witches in the course of fifteen months.

It is impossible not to shudder when we reflect that these victims of a dark superstition were tried, so late as the year 1692, by intelligent men, by judges who, though they may have been less learned, are reputed to have been as upright as Sir Matthew Hale, who, in England, condemned a witch to death in 1665. The prisoners were also under the protection of a jury, and the forms of law, copied from the British courts, so favorable to the accused in capital offenses. We learn from history that an epidemic resembling epilepsy raged at the time in Massachusetts, and, being attributed to witchcraft, solemn fasts and meetings for extraordinary prayers were appointed, to implore Heaven to avert that evil, thereby consecrating and confirming the popular belief in its alleged cause. As the punishment of the guilty was thought to be a certain remedy for the disorder, the morbid imagination of the patient prompted him to suspect some individual to be the author of his sufferings, and his evidence that he had seen spectral apparitions of witches inflicting torments on him was received as conclusive. One hundred and fifty persons were in prison awaiting trial, and two hundred others had been presented to the magistrate, when the delusion was dissipated by charges being brought against the wife of the Governor Phipps, and some of the nearest relatives of Mather, an influential divine. It was then found that by far the greater number of atrocities had been prompted by fear ; for during this short reign of terror the popular mind was in so disordered a state, that almost every one had to choose between being an accuser or a victim, and from this motive many afterward confessed that they had brought charges against the innocent.* The last executions for witchcraft in England

* See "Graham's History," vol. i. ch. v. p. 392.

were as late as 1716 ; but still later, in 1766, the Seceders in Scotland published an act of their associate Presbytery, denouncing that memorable act of the English parliament which repealed all the penal statutes against witchcraft.

The equal reverence paid by the Puritans and Scotch Seceders to the Jewish and Christian Scriptures (if, indeed, they did not hold the Old Testament in greater veneration than the New), was the chief cause of the superstition which led to these judicial murders. They had, indeed, in common with other Protestant sects, rejected the miracles ascribed to the Christian saints of the middle ages, because they were not supported by sufficient historical testimony. They had stood forward in the face of cruel persecutions courageously to vindicate the right of private judgment ; and they held it to be not only the privilege, but the duty, of every Christian, layman or ecclesiastic, to exercise his reason, and not yield himself up blindly to the authority of an earthly teacher. Yet if any one dared, in 1692, to call in question the existence of the witchcraft, he was stigmatized as an infidel, and refuted by the story of the Witch of Endor evoking the ghost of the dead Samuel. Against the recurrence of such dreadful crimes as those perpetrated in the years 1602–93, society is now secured, not by judges and juries of a more conscientious character or deeper sense of religious responsibility, but by the general spread of knowledge, or that more enlightened public opinion, which can never exist in the same perfection in the minds of the initiated few, so long as the multitude with whom they must be in contact are kept in darkness.

On our return from Salem to Boston, we found the seats immediately before us in the railway car occupied by two colored men, who were laughing and talking familiarly with two negro women, apparently servant maids. The women left us at the first station, and we then entered into conversation with the men who, perceiving by our accent, that we were foreigners, were curious to know what we thought of their country. Hearing that it was our intention to winter in the south, the elder traveler “hoped we should not be tainted there.” My wife, supposing he alluded to the yellow fever, said, “ We shall

be there in the cool season." He replied, "I was thinking of the moral atmosphere of the southern states." His pronunciation and expression were so entirely those of a well-educated white man, that we were surprised, and, talking freely with him and his companion, learnt that the elder, who was very black, but not quite a full negro, was from Delaware, and had been educated at an "abolition college" in Ohio. The younger, who was still darker, had been a slave in Kentucky, and had run away. They were traveling to collect funds for a school for runaway negroes, near Detroit, and expressed great satisfaction that at Salem they had found "the colored and white children all taught together in the same school, this not being the case in Boston." I told them that I had just seen a white landholder from Barbadoes, who had assured me that emancipation had answered well in that island; that there was a colored man in the legislature, another in the executive council, and several in the magistracy, and that much progress had been made in the general education of the blacks. The Delawarian remarked that this was cheering news, because the recent bad success of his race in Hayti had been used as an argument by the southern planters against their natural capacity for civilization. He then descanted on the relative liberality of feeling toward colored men in the various free states, and was very severe on Indiana, Illinois, and Ohio. I expressed surprise in regard to Ohio; but the Kentuckian affirmed that the law there afforded no real equality of protection to the black man, as he could not give evidence in courts of law, but must procure a white man as a witness. There had been a scuffle, he said, lately between a man of color and a white at Dayton, and, on the white being killed, the mob had risen and pulled down the houses of all the other black people. He went on narrating stories of planters shooting their slaves, and other tales of Kentucky, the accuracy of which my subsequent visit to that state gave me good reason to question. But I could not help being amused with the patriotism of this man; for, however unenviable he may have found his condition as a slave, he was still a thorough Kentuckian, and ready to maintain that in climate, soil, and every other quality, that state was immeasurably superior to the rest of the Union, especially

to Ohio, emancipation alone being wanting to demonstrate this fact to the world.

This adventure confirmed me in the opinion I had previously formed, that if the colored men had fair play, and were carefully educated, they might soon be safely intrusted with equality of civil and political rights. Whatever may be their present inferiority as a race, some of them have already shown superior abilities to a great many of the dominant whites. Whether, in the course of many generations, after the intense prejudices indulged against them have abated, they would come up to the intellectual standard of Europeans, is a question which time alone can decide. It has been affirmed by some anatomists that the brain of an *adult* negro resembles that of a white *child*; and Tiedemann, judging by the capacity of the cranium, found the brains of some of our uncivilized British ancestors not more developed than the average sized negro's brain. He says, "there is undoubtedly a very close connection between the absolute size of the brain, and the intellectual powers and functions of the mind." After a long series of observations and measurements, he refutes the idea that the brain of a negro has more resemblance to that of the orang-outang than the European brain.*

Mr. Owen, having some years ago made a post-mortem examination at St. Bartholomew's Hospital of the brain of an adult Irish laborer, found that it did not weigh more than the average brain of a youth from the educated classes of the age of fourteen; and he tells me, in a letter on this subject, that he is not aware "of any modification of form or size in the negro's brain that would support an inference that the Ethiopian race would not profit by the same influences favoring mental and moral improvement, which have tended to elevate the primitively barbarous white races of men."

The separation of the colored children in the Boston schools, before alluded to, arose, as I afterward learned, not from an indulgence in anti-negro feelings, but because they find they can in this way bring on both races faster. Up to the age of fourteen the black children advance as fast as the whites; but after

* Phil. Trans. London, 1836, p. 497.

that age, unless there be an admixture of white blood, it becomes in most instances extremely difficult to carry them forward. That the half breeds should be intermediate between the two parent stocks, and that the colored race should therefore gain in mental capacity in proportion as it approximates in physical organization to the whites, seems natural ; and yet it is a wonderful fact, psychologically considered, that we should be able to trace the phenomena of hybridity even into the world of intellect and reason.

CHAPTER VIII.

Pretended Fossil Sea Serpent, or Zeuglodon, from Alabama.—Recent Appearance of a Sea Serpent in Gulf of St. Lawrence.—In Norway, in 1845.—Near Cape Ann, Massachusetts, 1817.—American Descriptions.—Conjectures as to Nature of the Animal.—Sea Snake stranded in the Orkneys proved to be a Shark.—Dr. Barclay's Memoir.—Sir Everard Home's Opinion.—Sea Serpent of Hebrides, 1808.—Reasons for concluding that Pontopiddan's Sea Snake was a basking Shark.—Capt. M'Quhae's Sea Serpent.

DURING the first part of my stay in Boston, October, 1845, we one day saw the walls in the principal streets covered with placards, in which the words SEA SERPENT ALIVE figured conspicuously. On approaching near enough to read the smaller type of this advertisement, I found that Mr. Koch was about to exhibit to the Bostonians the fossil skeleton of "that colossal and terrible reptile the *sea serpent*, which, *when alive*, measured thirty feet in circumference." The public were also informed that this hydrarchos, or water king, was the leviathan of the Book of Job, chapter xli. I shall have occasion in the sequel, when describing my expedition in Alabama to the exact site from whence these fossil remains were disinterred by Mr. Koch, of showing that they belong to the zeuglodon, first made out by Mr. Owen to be an extinct cetacean of truly vast dimensions, and which I ascertained to be referable geologically to the Eocene period.

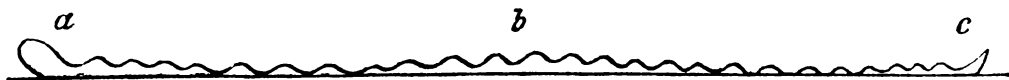
In the opinion of the best comparative anatomists, there is no reason to believe that this fossil whale bore any resemblance in form, when alive, to a snake, although the bones of the vertebral column, having been made to form a continuous series, more than 100 feet in length, by the union of vertebræ derived from more than one individual, were ingeniously arranged by Mr. Koch in a serpentine form, so as to convey the impression that motion was produced by vertical flexures of the body.

At the very time when I had every day to give an answer to

the question whether I really believed the great fossil skeleton from Alabama to be that of the sea serpent formerly seen on the coast near Boston, I received news of the reappearance of the same serpent, in a letter from my friend Mr. J. W. Dawson, of Pictou, in Nova Scotia. This geologist, with whom I explored Nova Scotia in 1842, said he was collecting evidence for me of the appearance, in the month of August, 1845, at Merigomish, in the Gulf of St. Lawrence, of a marine monster, about 100 feet long, seen by two intelligent observers, nearly aground in calm water, within 200 feet of the beach, where it remained in sight about half an hour, and then got off with difficulty. One of the witnesses went up a bank in order to look down upon it. They said it sometimes raised its head (which resembled that of a seal) partially out of the water. Along its back were a number of humps or protuberances, which, in the opinion of the observer on the beach, were true humps, while the other thought they were produced by vertical flexures of the body. Between the head and the first protuberance there was a straight part of the back of considerable length, and this part was generally above water. The color appeared black, and the skin had a rough appearance. The animal was seen to bend its body almost into a circle, and again to unbend it with rapidity. It was slender in proportion to its length. After it had disappeared in deep water, its wake was visible for some time. There were no indications of paddles seen. Some other persons who saw it compared the creature to a long string of fishing-net buoys moving rapidly about. In the course of the summer, the fishermen on the eastern shore of Prince Edward's Island, in the Gulf of St. Lawrence, had been terrified by this sea monster, and the year before, October, 1844, a similar creature swam slowly past the pier at Arisaig, near the east end of Nova Scotia, and, there being only a slight breeze at the time, was attentively observed by Mr. Barry, a millwright of Pictou, who told Mr. Dawson he was within 120 feet of it, and estimated its length at sixty feet, and the thickness of its body at three feet. It had humps on the back, which seemed too small and close together to be bends of the body.

The body appeared also to move in *long undulations*, including many of the smaller humps. In consequence of this motion the head and tail were sometimes both out of sight and sometimes both above water, as represented in the annexed outline, given from memory.

Fig. 1.



Drawing from memory of a sea serpent seen at Arisaig, Nova Scotia, Oct. 1844.

The head, *a*, was rounded and obtuse in front, and was never elevated more than a foot above the surface. The tail was pointed, appearing like half of a mackerel's tail. The color of the part seen was black.

It was suggested by Mr. Dawson that a swell in the sea might give the deceptive appearance of an undulating movement, as it is well known "that a stick held horizontally at the surface of water when there is a ripple seems to have an uneven outline." But Mr. Barry replied that he observed the animal very attentively, having read accounts of the sea serpent, and feels confident that the undulations were not those of the water.

This reappearance of the monster, commonly called the sea serpent, was not confined to the Gulf of St. Lawrence; for, two months after I left Boston, a letter from one Captain Lawson went the round of the American papers, dated February, 1846, giving a description of a marine creature seen by him from his schooner, when off the coast of Virginia, between Capes Henry and Charles—body about 100 feet long, with *pointed* projections (query, dorsal fins?) on the back; head small in proportion to its length.

Precisely in the same years, in July, 1845, and August, 1846, contemporaneous, and evidently independent accounts were collected in Norway, and published in their papers, of a marine animal, of "a rare and singular kind," seen by fishermen and others, the evidence being taken down by clergymen, surgeons, and lawyers, whose names are given, and some of whom de-

clared that they can now no longer doubt that there lives in their seas some monster, which has given rise to the tales published by Pontopiddan, Bishop of Bergen, in his *Natural History of Norway* (1752), who gave an engraving, which the living witnesses declare to be very like what they saw.

Fig. 2.



Pontoppidan's figure of the Norwegian sea serpent, published 1752.

These appearances were witnessed in 1845, near Christiansand, and at Molde, and in the parish of Sund, the animal entering fiords in hot weather, when the sea was calm. The length of the creature was from sixty to one hundred feet; color dark, body smooth, and in thickness, like that of a stout man; swimming swiftly with serpentine movement, both horizontally and up and down, raising its blunted head occasionally above the water; its eyes bright, but these not perceived by some witnesses; its undulating course like that of an eel; its body lay on the sea like a number of "large kegs," the water much agitated by its rapid movements, and the waves broke on the shore as when a steam-boat is passing. From the back of the head a mane like that of a horse commenced, which waved backward and forward in the water. Archdeacon Deinboll says, that "the eye-witnesses, whose testimony he collected, were not so seized with fear as to impair their powers of observation; and one of them, when within musket shot, had fired at the monster, and is certain the shots hit him in the head, after which he dived, but came up again immediately."

In reading over these recent statements, drawn up by observers on both sides of the Atlantic, it is impossible not to be struck with their numerous points of agreement, both with each other and with those recorded by the New Englanders between the years 1815 and 1825, when the sea serpent repeatedly visited the coast of North America. There is even a coincidence in

most of the contradictions of those who have attempted to describe what they saw of the color, form, and motion of the animal. At each of these periods the creature was seen by some persons who were on the shore, and who could take a leisurely survey of it, without their imaginations being disturbed by apprehensions of personal danger. On the other hand, the consternation of the fishermen in Norway, the Hebrides, and America, who have encountered this monster, is such, that we are entitled to ask the question—Is it possible they can have seen nothing more than an ordinary whale or shark, or a shoal of porpoises, or some other known cetacean or fish?

So great a sensation was created by the appearance of a huge animal, in August, 1817, and for several successive years in the harbor of Gloucester, Massachusetts, near Cape Ann, that the Linnæan Society of Boston appointed a committee to collect evidence on the subject. I am well acquainted with two of the three gentlemen, Dr. Bigelow and Mr. F. C. Gray, who drew up the report, which gives in detail the depositions of numerous witnesses who saw the creature on shore or at sea, some of them from a distance of only ten yards. “The monster,” they say, “was from eighty to ninety feet long, his head usually carried about two feet above water; of a dark brown color; the body with thirty or more protuberances, compared by some to four-gallon kegs, by others to a string of buoys, and called by several persons bunches on the back; motion very rapid, faster than those of a whale, swimming a mile in three minutes, and sometimes more, leaving a wake behind him; chasing mackerel, herrings, and other fish, which were seen jumping out of the water, fifty at a time, as he approached. He only came to the surface of the sea in calm and bright weather. A skillful gunner fired at him from a boat, and, having taken good aim, felt sure he must have hit him on the head; the creature turned toward him, then dived under the boat, and reappeared a hundred yards on the other side.”

Just as they were concluding their report, an unlucky accident raised a laugh at the expense of the Linnæan Committee, and enabled the incredulous to turn the whole matter into ridicule.

It happened that a common New England species of land snake (*Coluber constrictor*), full grown, and about three feet long, which must have been swept out to sea, was cast ashore, and brought to the committee. It had a series of humps on its back, caused by the individual happening to have a diseased spine—a fact which can no longer be disputed, for I have seen the identical specimen, which is still preserved in spirits in the Museum of New Haven. As many of the deponents declared this snake to be an exact miniature of the great monster, the Committee concluded that it might be its young, and, giving a figure of it, conferred upon it the high-sounding appellation of *Scoliophys Atlanticus*, the generic name being derived from the Greek *σκολιὸς*, scolios, flexible, and *ὄφις*, ophis, snake.

In addition to these published statements, Colonel Perkins, of Boston, had the kindness to lay before me his notes, made in July, 1817, when he saw the animal. He counted fourteen projections, six feet apart, on the back, which he imagined to be vertical flexures of the body when in motion; but he also saw the body bent horizontally into the figure of the letter S. It was of a chocolate brown color, the head flat, and about a foot across. A friend of his took a pencil sketch of it, which was found to resemble Pontoppidan's figure.* Respecting the length, Mr. Mansfield, a friend of the Colonel, was driving a one-horse vehicle on a road skirting Gloucester Bay, along the edge of a cliff, fifty or sixty feet in perpendicular height, when he saw the sea-serpent at the base of the cliff on the white beach, where there was not more than six or seven feet water, and, giving the reins to his wife, looked down upon the creature, and made up his mind that it was ninety feet long. He then took his wife to the spot, and asked her to guess its length, and she said it was as long as the wharf behind their house, and this measured about 100 feet. While they were looking down on it, the creature appeared to be alarmed, and started off. I asked another Bostonian, Mr. Cabot, who saw the monster in 1818, whether it might not have been a shoal of porpoises following each other in a line, at the distance of one or two yards, and tumbling over so

* See "Silliman's Journal," vol. ii. p. 156.

as to resemble a string of floating barrels in motion. He said that after this explanation had been suggested to him, he was one of thirty persons who ran along the beach at Nahant, near Boston, when the sea serpent was swimming very near the shore. They were all convinced that it was one animal, and they saw it raise its head out of the water. He added that there were at that time two sea serpents fishing in the Bay at once.

Among many American narratives of this phenomenon which have been communicated to me, I shall select one given me by my friend Mr. William McIlvaine of Philadelphia, because it seems to attest the fact of the creature having wandered as far south as Cape Hatteras, in North Carolina, lat. 35° . "Captain Johnson, of New Jersey, was sailing, in the year 1806, from the West Indies, on the inner edge of the gulf stream, in a deeply laden brig, when they were becalmed, and the crew and passengers awe-struck by the sudden apparition of a creature having a cylindrical body of great length, and which lifted up its head eight feet above the water. After gazing at them for several minutes it retreated, making large undulations like a snake." The story had been so much discredited that the captain would only relate it to intimate friends.

After the year 1817, every marvelous tale was called in the United States a snake story; and when Colonel Perkins went to Washington twenty years ago, and was asked if he had ever known a person who had seen the sea serpent, he answered that he was one of the unfortunate individuals who saw it himself. I confess that when I left America in 1846, I was in a still more unfortunate predicament, for I believed in the sea serpent without having seen it. Not that I ever imagined the northern seas to be now inhabited by a gigantic ophidian, for this hypothesis has always seemed to me in the highest degree improbable, seeing that, in the present state of the globe, there is no great development of reptile life in temperate or polar regions, whether in the northern or southern hemisphere. When we enter high latitudes, such as those in which the creature called a sea serpent most frequently occurs, we find even the smaller reptilians, such as frogs and newts, to grow rare or disappear; and there are no

representatives of the hydrophis or true water-snake, nor of tortoises, nor of the batrachian or lizard tribes.

In like manner, in the geological periods, immediately antecedent to that when the present molluscos fauna came into existence, there was a similar absence of large reptiles, although there were then, as now, in colder latitudes, many huge sharks, seals, narwals, and whales. If, however, the creature observed in North America and Norway, should really prove to be some unknown species of any one of these last-mentioned families of vertebrata, I see no impropriety in its retaining the English name of sea serpent, just as one of the seals is now called a sea elephant, and a small fish of the Mediterranean, a sea horse; while other marine animals are named sea mice and urchins, although they have only a fanciful resemblance to hedgehogs or mice.

Some naturalists have argued that, if it were an undescribed species, some of its bones must, ere this, have been washed ashore; but I question whether we are as yet so well acquainted with all the tenants of the great deep as to entitle us to attach much weight to this argument from negative evidence; and I learn from good zoologists that there are whales so rare as never to have been seen since Sibbald described them in the middle of the seventeenth century. There is also a great cetacean, about thirty feet long, called *Delphinorhyncus micropterus*, of which only three specimens have ever been met with. One of these was thrown ashore forty years ago on the coast of Scotland, and the other two stranded on the shores of Belgium and France, and identified with the British species by Dr. Melville.

The doubts, however, which since my return from the United States, I have been led to entertain respecting the distinct and independent existence of the sea serpent, arise from a strong suspicion that it is a known species of sea animal which has actually been cast ashore in the Orkneys, and that some of its bones are now preserved in our museums, showing it to be of the squaline family, and no stranger to some of the zoologists whom it has perplexed, nor to many of the seafaring people whom it has frightened. In the summer of the year 1808, the fishermen

of the Hebrides were terrified by a monster of huge size and unusual appearance, which created a great sensation in Scotland. Three or four months after this apparition, the body of an enormous sea monster was washed ashore (Sept. 1808) on the outer reefs at Rothesholm Head in Stronsa, one of the Orkneys, where it was first observed while still entire, and its length measured by two persons; after which, when somewhat decayed, it was swept in by another storm, and stranded on the beach, and there examined by others. Mr. Neill, well known as a naturalist, who had been on a visit to Stronsa the same year, but had left before this occurrence, immediately corresponded with friends on the spot, among others with Mr. Laing, the historian, and with a lawyer and physician, who collected evidence for him. Their affidavits, taken in 1808, respecting the monster, were published in the Transactions of the Wernerian Society, of which Mr. Neill was secretary, and were accompanied by a drawing of the skeleton, obviously ideal and very incorrect, with six legs and a long tail curving several times vertically. The man who sketched it reached the spot too late, and when scarcely any part of the animal remained entire, and the outline is admitted to have been taken by him and altered from a figure chalked out upon a table by another man who had seen it, while one witness denied its resemblance to what he had seen. But a carpenter, whose veracity, I am informed by Mr. Neill (in a letter dated 1848), may be trusted, had measured the carcass, when still whole, with his foot-rule, and found it to be fifty-five long, while a person who also measured it when entire, said it was nine fathoms long. The bristles of the mane, each fourteen inches in length, and described as having been luminous in the dark, were no doubt portions of a dorsal fin in a state of decomposition. One said that this mane extended from the shoulders to within two feet and a half of the tail, another that it reached to the tail: a variance which may entitle us to call in question the alleged continuity of the mane down the whole back. So strong was the propensity in Scotland to believe that the Stronsa animal was the sea serpent of the Norwegians, that Mr. Neill himself, after drawing up for the Wernerian Society his description of it from the

different accounts communicated to him, called it *Halsydrus Pontoppidani*.

Parts of the cranium, scapular arch, fin, and vertebral column were sent to Dr. Barclay of Edinburgh, who had at that time the finest museum of comparative anatomy north of the Tweed, and he conceived them to belong to a new and entirely unknown monster.

If the imagination of good zoologists could be so preoccupied as to cause them at once to jump to the conclusion that the Stronsa animal and the Norwegian sea serpent were one and the same, we can not be surprised that the public in general placed the most implicit faith in that idea. That they did so, is proved by a passage recently published in Beattie's *Life of Campbell*, where the poet writes thus, in a letter dated February 13th, 1809 :—

“Of real life let me see what I have heard for the last fortnight : first, a snake—my friend Telford received a drawing of it—has been found thrown on the Orkney Isles ; a sea snake with a mane like a horse, four feet thick, and fifty-five feet long. This is seriously true. Malcolm Laing, the historian, saw it, and sent a drawing of it to my friend.”*

Now here we see the great inaccuracy of what may be styled contemporaneous testimony of a highly educated man, who had no motive or disposition to misrepresent facts. From the *Wernerian Transactions* and Mr. Neill's letter, I learn distinctly that Malcolm Laing never went to the shore of Stronsa to see the monster.

Fortunately, several of the vertebræ were forwarded, in 1809, to Sir Everard Home, in London, who at once pronounced them to belong to the *Squalus maximus*, or common basking shark. Figures of other portions sent to Edinburgh to Dr. Barclay, were also published by him in the *Wernerian Transactions*, and agree very well with Home's decision, although it is clear, from Barclay's *Memoir*, that he was very angry with the English anatomist for setting him right, and declaring it to be a shark. It was indeed very difficult to believe on any but the most con-

* *Campbell's Life*, vol. ii. p. 169, 170.

vincing evidence that a carcass which was fifty-five feet long could be referable to a species, the largest known individual of which has never exceeded thirty-five or forty feet. But there seems no escape from Home's verdict ; for the vertebræ are still in the College of Surgeons, where I have seen them, quite entire, and so identical with those of the *Squalus maximus*, that Mr. Owen is unwilling to imagine they can belong to any other species of the same genus.

Mr. Neill tells me, in his letter, that the basking shark is by no means uncommon in the Orkneys, where it is called the hockmar, and a large one was killed in Stromness Harbor in 1804, when he was there ; yet it was agreed by all with whom he spoke in 1808, that the Stronsa animal was double the length of the largest hockmar ever stranded in their times in Orkney.

Unfortunately, no one observed the habits and motions of the monster before it was cast ashore ; but the Rev. Donald Maclean, of Small Isles in the Hebrides, was requested to draw up a statement of what he recollected of the creature which had so much alarmed the fishermen in the summer of the same year. Before he penned his letter, which was printed as an appendix to Barclay's Memoir in 1809,* he had clearly been questioned by persons who were under the full persuasion that what he had seen, and the Stronsa animal, were identical with Pontoppidan's sea serpent. Maclean informs us, that it was about the month of June, 1808, when the huge creature in question, which looked at a distance like a small rock in the sea, gave chase to his boat, and he saw it first from the boat, and afterward from the land.

Its head was broad, of a form somewhat oval ; its neck rather smaller. It moved by undulations up and down. When the head was above water, its motion was not so quick ; when most elevated, it appeared to take a view of distant objects. It directed its "monstrous head," which still continued above water, toward the boat, and then plunged violently under water in pursuit of them. Afterward, when he saw it from the shore, "it moved off with its head above water for about half a mile

* Wern. Trans. vol. i. p. 444.

before he lost sight of it. Its length he believed to be from seventy to eighty feet." "About the same time the crews of thirteen fishing boats, off the island of Canna, were terrified by this monster; and the crew of one boat saw it coming toward them, between Rum and Canna, with its head high above water."*

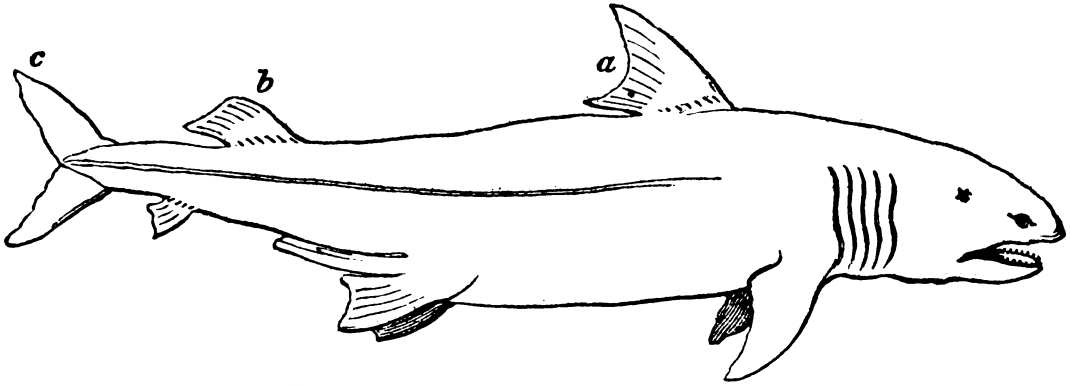
Mr. Maclean adds, evidently in answer to a question put by his correspondent, that he saw nothing of the mane; and adds, "when nearest to me it did not raise its head wholly above water, so that the neck being under water, I could perceive no shining filaments thereon, if it had any." And he also observes: "It had no fin that I could perceive, and seemed to me to move progressively by undulations up and down." Most of my readers are probably satisfied by this time, that if nothing had come down to us but oral testimony, or even published accounts without figures respecting the creature seen in the Hebrides in 1808, as well as that afterward stranded in Orkney, we should all of us have felt sure that both of them were one and the same monster, and no other than the sea snake of Pontoppidan, or that so often seen on the eastern coast of North America. How much delusion in this case has been dispelled by the preservation of a few bones! May we not then presume that other sea serpents were also sharks? If so, how are we to reconcile recorded appearances with this hypothesis? It was justly remarked by Dr. Fleming, in his *British Animals*, 1828 (p. 174), that Maclean's account of a creature, which raised its head above the water and viewed distant objects, was opposed to the idea of its being referable to the class of cartilaginous fishes, for no shark lifts its head out of the sea as it swims. I may also remark, that the descriptions commonly given, both by the Norwegians and North Americans, would agree better with the appearance of a large seal with a mane, chased by a shoal of porpoises, than with a shark.

But when we question the evidence more closely, we must make great allowance for the incompetence of observers wholly ignorant of zoology. In the first place, we must dismiss from our minds the image of a shark as it appears when out of the

* Wern. Trans. Edinburgh, vol. i. p. 444.

water, or as stuffed in a museum. The annexed figure represents the outline of the *Squalus maximus*, of which when immersed, but swimming near the surface, three points only could be seen above water at the same time, namely, the prominence of the back, with the first dorsal fin, *a*; secondly, the second dorsal fin, *b*; and thirdly, the upper lobe of the tail, *c*.

Fig. 3.



Squalus maximus, Basking Shark, or Hockmar.

a. First dorsal fin ; *b.* Second dorsal fin ; *c.* Caudal fin.

Dr. Melville informed me that he once saw a large species of shark, swimming at the rate of ten miles an hour, in Torres Strait, off Australia ; and, besides the lateral flexures of the tail, which are the principal propelling power, the creature described as it advanced a series of vertical undulations, not by the actual bending of the body itself, but by the whole animal first rising near to the surface and then dipping down again, so that the dorsal fin and part of the back were occasionally lifted up to a considerable height. Now it strikes me, that if a very huge shark was going at the rate of twenty miles an hour, as stated by some of the observers, that portion of the back which emerged in front might easily be taken for the head, and the dorsal fin behind it for the mane ; and in this manner we may explain the three projecting points, *a*, *b*, *c*, fig. 1, p. 109, given in the drawing, sketched from memory, by Mr. Barry of Nova Scotia. The smaller undulations seen by the same person, intervening between the three larger, may very well be referred to a series of waves raised in the water by a rapid passage through it of so bulky a body. Indeed, some of the drawings which I have seen

of the northern sea snake, agree perfectly with the idea of the projecting back of a shark followed by a succession of waves, diminishing in size as they recede from the dorsal prominence.

The parts before mentioned as alone visible above water would form so small a portion of the whole body, that they might easily convey the notion of narrowness as compared to great length; and the assertion of a few witnesses that the dorsal projections were pointed, may have arisen from their having taken a more accurate look at the shape of the fins, and distinguished them better from the intervening waves of the sea. But, according to this view, the large eyes seen in the "blunt head" by several observers, must have been imaginary, unless in cases where they may have really been looking at a seal. It can hardly be doubted that some good marksmen, both in Norway and New England, who fired at the animal, sent bullets into what they took to be the head, and the fact that the wound seems never to have produced serious injury, although in one case blood flowed freely, accords perfectly with the hypothesis that they were firing at the dorsal prominence, and not at the head of a shark. The opinion of most of the observers that the undulations were coincident with the rapid movements of the creature, agrees well with our theory, which refers the greater number of the projections to waves of the sea. On the other hand, as several of the protuberances are real, consisting of three fins and a part of the back, the emergence of these parts may explain what other witnesses beheld. Dr. Melville has suggested to me, that if the speed were as great as stated, and the progressive movement such as he has described,* the three fins would be first submerged, and then re-emerge in such rapid succession, that the image of one set would be retained on the retina of the eye after another set had become visible, and they might be counted over and over again, and multiplied indefinitely. Although I think this explanation unnecessary in most cases, such a confusion of the images seems very possible, when we recollect that the fins would be always mingled with waves of the sea, which are said, in the Norwegian accounts of 1845, to have been so great, that they broke on the coast in

* Ante, p. 119.

calm weather, when the serpent swam by, as if a steamer at full speed was passing near the shore.

I conclude, therefore, that the sea serpent of North America and the German Ocean is a shark, probably the *Squalus maximus*, a species which seems, from the measurements taken in Orkney in 1808, to attain sometimes, when old, a much larger size than had ever been previously imagined. It may be objected, that this opinion is directly opposed to a great body of evidence which has been accumulating for nearly a century, derived partly from experienced sea-faring men, and partly from observers on the land, some of whom were of the educated class. I answer that most of them caught glimpses only of the creature when in rapid motion and in its own element, four-fifths or more of the body being submerged; and when, at length, the whole carcass of a monster mistaken for a sea snake was stranded, touched, and measured, and parts of it sent to the ablest anatomists and zoologists in Scotland, we narrowly escaped having transmitted to us, without power of refutation, a tale as marvelous and fabulous concerning its form and nature, as was ever charged against Pontopidan by the most skeptical of his critics.*

* After the above was written, a letter appeared in the English newspapers, by Captain M'Quhae, R.N., of the *Dædalus* frigate, dated Oct. 7, 1848, giving an account of "the sea serpent" seen by him, Aug. 6, 1848, lat. $24^{\circ} 44'$ S. between the Cape and St. Helena, about 300 miles distant from the western coast of Africa; the length estimated at sixty feet, head held four feet above water, with something like the mane of a horse on its back which was straight and inflexible. Professor Owen has declared his opinion, after seeing the drawing of the animal, sent to the Admiralty by Captain M'Quhae, "that it may have been the largest of the seal tribe, the sea-elephant of the southern whalers, *Phoca proboscidea*, which sometimes attains a length of thirty feet, and individuals of which have been known to have been floated by icebergs toward the Cape. This species has coarse hair on the upper part of its inflexible trunk which might appear like a mane. The chief impelling force would be the deeply immersed terminal fins and tail, which would create a long eddy, readily mistakable for an indefinite prolongation of the body."

Mr. Owen's conjecture appears to me very probable; but, before I heard it, I had made up my mind that the creature seen by Captain M'Quhae differed from the sea serpent of the Norwegians and New Englanders, from whose description it varies materially, especially in the absence, when at full speed, of apparent undulations, or dorsal prominences.

CHAPTER IX

Boston.—No Private Lodgings.—Boarding-houses.—Hotels.—Effects of the Climate on Health.—Large Fortunes.—Style of Living.—Servants.—Carriages.—Education of Ladies.—Marriages.—Professional Incomes.—Protectionist Doctrines.—Peculiarities of Language.—Literary Tastes.—Cost of Living.—Alarms of Fire.

As we intended to pass nearly two months in Boston, we determined to look out for private lodgings, such as might be met with in every large town in England, but which we found it almost impossible to procure here. It does not answer to keep houses, or even suites of apartments to let in a city where house-rent is so dear, and well-trained servants so difficult to hire, even at high wages. In this country, moreover, the mass of the people seem to set less value on the privilege of living in private than we English do. Not only strangers and bachelors, but whole families, reside in boarding-houses, usually kept by a widow who has known better days, and is a good manager, and can teach and discipline servants.

During a former tour, we had found it irksome to submit to the rules of a boarding-house for any length of time; to take every meal at a public table, where you are expected to play the agreeable to companions often uncongenial, and brought together on no principle of selection; to join them in the drawing-room a short time before dinner; to call on them in their rooms, and to listen to gossip and complaints about the petty quarrels which so often arise among fellow-boarders, as in a ship during a long voyage. The only alternative is to get private rooms in an hotel, which I at length succeeded in procuring at the Tremont House, after I had failed in negotiating a treaty with several landlords to whom I had been recommended. One of these, after showing me his apartments, and stating his terms, ended by saying, "Ours is a temperance house—prayers orthodox." I presume that my countenance betrayed the amusement which this last piece of in-

telligence afforded me, for he instantly added, in an under tone, "But if you and your lady should not attend prayers, it will not be noticed."

A Bostonian, who had returned from a tour in England and Ireland, much struck with the poverty of the lower classes, and with the difficulties experienced by those who are struggling to rise in the world, remarked to me, "We ought to *be* happier than the English, although we do not *look* so." There is, in fact, a care-worn expression in the countenances of the New Englanders, which arises partly from their striving and anxious disposition, and their habits of hard work, mental and bodily, and partly from the effects of the climate.

One of their lawyers expressed to me his regret that the members of his profession, and their most eminent politicians, physicians, and literary men, would not spare themselves, and give up some time to relaxation. "They seem determined," he said, "to realize the sentiment so finely expressed by Milton—

•
'To scorn delights, and live laborious days.'

Our ancestors had to work fifteen hours out of every twenty-four, in order not to starve in the wilderness; but we persist in straining every nerve when that necessity has ceased." He then reminded me how much more cheerful, plump, and merry the young negro children looked in the South, than those of New England, who had all the appearance of having been forced in their education, and over-crammed at school.

I suspect, however, that the principal cause of the different aspect of the Anglo-Saxon race in England and America is the climate. During both our tours through the United States, my wife and I enjoyed excellent health, and were delighted with the clearness of the atmosphere, the bright sun, and the great number of cloudless days; but we were told that, if we staid a second year, we should feel less vigorous. Many who have been • born in America, of families settled there for several generations, find their health improved by a visit to England, just as if they had returned to their native air; and it may require several centuries before a race becomes thoroughly acclimatized.

The great difference of the species of indigenous animals and plants in North America, those of the middle and southern states being almost all distinct from the European, points to a wide diversity of climate, the atmosphere being drier, and there being a much greater annual range of the thermometer than in corresponding latitudes on the eastern side of the Atlantic. Even so cosmopolite a being as man may demand more than two centuries and a quarter before he can entirely accommodate his constitution to such altered circumstances, and before the successive generations of parents can acquire themselves, and transmit to their offspring, the new and requisite physiological peculiarities.

English travelers often ascribe the more delicate health of the inhabitants here to their in-door habits and want of exercise. But it is natural that they should shrink from exposing themselves to the severe frosts and long-continued snows of winter, and to the intense heat of the summer's sun. An Englishman is usually recognized at once in a party, by a more robust look, and greater clearness and ruddiness of complexion; and it is surprising how distinguishable he is even from persons born of English parents in the United States. It is also a curious fact, which seems generally admitted, that the native Anglo-Australians bear a considerable resemblance to the Anglo-Americans in look and manner of speaking, which is a mystery, for there is certainly in that case no analogy between the climates of the two countries.

The number of persons in Boston who have earned in business, or have inherited large fortunes, is very great. The Common, a small park, which is by no means the only quarter frequented by rich citizens, is surrounded by houses which might form two fine squares in London, and the average value of which, in the market, might bear a comparison with those in very fashionable parts of our metropolis—sums of from 4000*l.* to 20,000*l.* sterling having been paid for them. The greater part of these buildings are the property of the persons who reside in them; and they are fitted up very elegantly, and often expensively. Entertainments in a sumptuous style are not rare; but the small number of servants in comparison with those kept in England by

persons of corresponding income, and the want of an equipage, impart to their mode of life an appearance of simplicity which is perhaps more the result of necessity than of deference to a republican theory of equality. For to keep servants here for mere show, would not only be thought absurd, but would be a great sacrifice of comfort. To obtain a few efficient ones at any price, and to put up with many inconveniences rather than part with them—allowing them to continue in service after marriage, is the practice of not a few of the richest people, who often keep no more than four domestics where there would be at least nine in London. In consequence of this state of things, the ladies are more independent of being waited on than those of similar fortune in England; but we are sometimes amused when we hear them express envy of the superior advantages enjoyed in Europe, for they are under the delusion of supposing that large establishments give no trouble in “the old country.” There are, indeed, crowds of poor emigrants here, especially from Ireland, eager for employment; but for the most part so coarse, ignorant, and dirty in their habits, that they can not gain admittance into genteel houses. No mistress here ventures to interfere with the dress of a servant maid, and girls wait at table with braided hair, which is certainly more becoming to them when young, and are never required to conceal with a cap their neatly arranged locks, according to the costume approved of by English disciplinarians. When raising the dust at their work, in sweeping the floors, they cover the head with a handkerchief. The New England servants are generally provident, for, besides the intelligence they derive from their early school education, they have a reasonable hope of bettering their condition, are well paid, and not kept down in the world by a number of poor relations.

Many of the wealthiest families keep no carriage, for, as I before said, no one affects to live in style, and the trouble of engaging a good coachman and groom would be considerable, and also because the distances in Boston are small, and the facilities of traveling by railway into the country in all directions very great. But there are many livery stables, where excellent carriages and horses are to be hired with well-dressed drivers.

Some of their vehicles are fitted up with India-rubber tubes, to enable those inside to communicate with the coachman without letting down the glass, which, during a severe New England frost, or a snow storm, must be no unmeaning luxury.

They who can not afford to live in the metropolis, reside with their families at places often twenty-five miles distant, such as Ipswich, and go into their shops and counting-houses every morning, paying 100 dollars (or twenty guineas), for an annual ticket on the railway, and being less than an hour at a time on the road.

The usual hours of breakfasting and dining here are much earlier than in London; yet evening parties in the most fashionable society do not begin till nine, and often ten o'clock, which appears a senseless imitation of foreign manners, and calculated, if not intended, to draw a line between those who can afford to turn night into day, and those who can not.

In some houses the gentlemen go up after dinner with the ladies, as in France, to the drawing-room; but it is more common, as in England, to stay a while and talk together. There is very little drinking, and I scarcely ever heard any conversation in which the women might not have joined with propriety. Bachelor dinners are more frequent than in the highest circles in London; but there is beginning to be a change in this respect, and certainly the ladies are well able to play their part, for no care or expense is spared to give them, not only every female accomplishment, but a solid education. The incomes made by some men of superior scholarship and general knowledge, who devote themselves entirely to the teaching of young ladies, and, still more, the station held by these teachers in society, is a characteristic of Boston highly deserving of praise and imitation.

The influence of cultivated women in elevating and refining the tone of society and the national mind, may nowhere be rendered more effective than where a large proportion of the men are engaged in mercantile business, and belong to a class who have too truly been said "to live in counting-houses that they may sleep in palaces." Their wives and daughters have leisure to acquire literary and scientific tastes, and to improve their

understandings, while the fathers, husbands, and brothers are summing up accounts, attending to the minute details of business, or driving bargains.

The impress of the strict morals of the Puritan founders of the New England commonwealths on the manners of their descendants, is still very marked. Swearing is seldom heard, and duelling has been successfully discountenanced, although they are in constant communication with the southern states, where both these practices are common, though much less so than formerly.

The facility of getting on in the world, and marrying young, is, upon the whole, most favorable to the morals of the community, although it sometimes leads to uncongenial and unhappy unions. But, as a set-off to this evil, it should be stated, that nowhere is there so much free choice in forming matrimonial connections without regard to equality of fortune. It is unavoidable that the aristocracy of taste, manners, and education should create barriers, which can not be set at naught without violence to the feelings ; but we had good opportunities of knowing that parents would be thought far more unreasonable here than in England, and in some other states of the Union, if they discouraged alliances on the mere ground of one of the parties being without fortune.

The most eminent medical men in Boston make, I am told, about 9500 dollars (2000*l*.) a year, and their early career is one of hard striving and small profits. The incomes made by the first lawyers are much more considerable, and I hear that, when a leading practitioner was invited to transfer his business from Boston to New York, because he might be employed there by a population of 400,000 souls, he declined, saying, that his clients were drawn from a population nearly equal in numbers and average wealth, although not a fourth part of them were resident in the city of Boston.

Bankruptcies are rarer than in any other mercantile community in the Union of equal extent, and, when they do occur, larger dividends are paid to the creditor. As most of the rich private citizens live within their income, so the State is frugal, and although its credit stands so high that it could borrow largely, it

has contracted very little debt, it being thought advisable to leave the execution of almost every kind of public work to private enterprise and capital.

In many of the southern and western states, the commercial policy of Massachusetts was represented to me as eminently selfish, the great capitalists wishing to monopolize the manufacturing trade, and by a high tariff to exclude foreign capitalists, so as to grow rich at the expense of other parts of the Union. In conversing with the New Englanders, I became satisfied that, in spite of the writings of the first political economists in Europe and America, and the opinion of Channing, and some other of their own distinguished men (not excepting Daniel Webster himself in the early part of his career), they have persuaded themselves that the doctrines of free trade are not applicable to the present state of their country. The facility with which every people conscientiously accommodate their speculative opinions to their local and individual interests, is sufficiently demonstrated by the fact, that each of the other states, and sections of states, as they successively embark in the manufacture, whether of cotton, iron, or other articles, become immediately converts to protectionist views, against which they had previously declaimed.

There is a general feeling of self-respect pervading all classes in the New England states, which enables those who rise in the world, whether in political life, or by suddenly making large fortunes in trade, if they have true gentility of feeling, to take their place in good society easily and naturally. Their power of accommodating themselves to their new position is greatly facilitated by the instruction imparted in the free schools to all, however humble in station, so that they are rarely in danger of betraying their low origin by ungrammatical phrases and faulty pronunciation.

English critics are in the habit of making no allowance for the slightest variations in language, pronunciation, or manners, in any people descended from the Anglican stock. In the Germans or French they may think a deviation from the British standard odd or ridiculous, but in an American they set it down at once as vulgar; whereas it may be one of those conventional-

isms, respecting which every nation has a right to enforce its own arbitrary rules. The frequent use of the words, "sir" and "ma'am," in the United States, like "oui, monsieur, oui, madame," in France, for the sake of softening the bald and abrupt "yes" or "no," would sound to a Frenchman or Italian more polite; and if the Americans were to conform to the present English model in such trifles, it might happen that in England itself the fashion may soon change. There are also many genuine old classical phrases, which have grown obsolete in the parent country, and which the Americans retain, and ought not to allow themselves to be laughed out of. The title of Madam is sometimes given here, and generally in Charleston (S. Carolina), and in the South, to a mother whose son has married, and the daughter-in-law is then called Mrs. By this means they avoid the inelegant phraseology of old Mrs. A., or the Scotch, Mrs. A. senior. Madam, in short, very commonly serves as the equivalent of dowager, as used in English titled families. There are also some antique provincialisms handed down from the times of the first settlers, which may well deserve to be kept up, although they may be subjects of diversion to English tourists. In one of Shirley's plays, written just before the middle of the seventeenth century, when the largest emigration took place from Old to New England, we find the term, "I guess," for "I think," or "I suppose," occurring frequently; and if we look farther back, it is met with in the "Miller's Tale" and in the "Monk" of Chaucer :—

. . . "For little heaviness
Is right enough for muchel folk, I guess."

And in Spenser's "Faerie Queene"—

"It seemed a second Paradise, I guesse."*

Among the most common singularities of expression are the following :—"I should admire to see him" for "I should like to see him;" "I want to know," and "Do tell," both exclamations of surprise, answering to our "Dear me." These last, however, are rarely heard in society above the middling class. Occa-

* Canto x. 23.

sionally I was as much puzzled as if I was reading Tam o'Shanter, as, for example, "out of kittel" means "out of order." The word "sick" is used in New England in the same sense as it was in the time of Shakspeare, or when the liturgy of the Church of England was composed. The word "ill," which in Great Britain means "not well," signifies in America "very ill." They often speak here of a "lovely man," using the adjective in a moral sense; and say of a plain, shriveled old woman, that she is "a fine and lovely woman," meaning that her character and disposition are amiable. "Clever" is applied to a good-natured and good-hearted person who is without talent and quickness. At first we had many a good laugh when we discovered that we had been at cross purposes, on comparing notes as to our opinions of English and American friends. On one occasion I admitted that Mrs. A. might be "a fine and lovely woman," but it could only be said of her by candlelight.

In the literary circles here we meet with several writers who are keeping up an active correspondence with distinguished men in all parts of Europe, but especially with English authors.

We are often amused to observe how much the conversation turns on what is going on in London. One day I was asked whether it were true that the committee for deciding on the statues to be set up in the new House of Lords, had voted in favor of Richardson, before they could make up their minds whether they should honor Pope, Dryden, Swift, and Fielding; and whether Milton was at first black-balled, and how they could possibly be disputing about the rival claims of Hume and Robertson as historians, while a greater than either of them, Gibbon, was left out of the question. They suggested that a tribunal of literary Jews might soon be required to pronounce fairly on the merits of Christian writers. "Do your countrymen," said one of my friends to me, "mean to imitate the spirit of the king of Bavaria, who excluded Luther from his Walhalla because he was a Protestant, and instead of Shakspeare and Newton could endure no representatives of British genius, save the orthodox King Alfred and Roger Bacon?" I was curious, when I got home, to learn how much of this gossip about things in the old

country was founded on correct information, and was relieved to find that the six poets ultimately selected were Chaucer, Spenser, Shakspeare, Milton, Dryden, and Pope; a result which, considering that a single black ball excluded, did credit to the umpires, and would, I am sure, be approved of by a literary jury in Massachusetts. I was also glad to learn that in Bavaria, as soon as political parties changed, a royal order was issued to admit the bust of Luther into the Walhalla.

The Americans, in general, have more self-possession and self-confidence than Englishmen, although this characteristic belongs perhaps less to the Bostonians than to the citizens of most of the other parts of the Union. On the other hand, the members of the great republic are sensitive and touchy about their country, a point on which the English are imperturbably indifferent, being proud of every thing British, even to a fault, since contempt for the opinion of other nations may be carried so far as to diminish the prospect of national improvement. It might be better if each of the great branches of the Anglo-Saxon family would borrow something from the qualities of the other,—if John Bull had less *mauvais honte*, so as to care less for what others were thinking of himself individually, and if Jonathan cared less for what others are thinking of his country.

The expense of living in the northern states is, upon the whole, decidedly more reasonable than in England, although the dress, both of men and women, is somewhat dearer. In Boston, also, the rent of houses is very high, but not so in the country. Traveling is much cheaper, and so are food, newspapers, and books. On comparing the average price of bread during the present year with that in England, we find that it is about twenty-five per cent. cheaper, beef and mutton ten per cent. cheaper, and the price of poultry extremely moderate. Why, in so old a city as Boston, the supply of seamstresses, milliners, and dressmakers, should be as inadequate to the demand as in some of our newly-founded colonies when most progressive, I leave to political economists to explain. My wife was desirous of having a dress and bonnet made up in a week, but one milliner after another declined to undertake the task. It would be a useful lesson to

those who are accustomed to consider themselves as patrons whenever they engage others to do work for them, to learn how in reality, if things are in a healthy state, the obligation is mutual ; but to discover that the usual relations of the employer and employed are entirely reversed, and that the favor is by no means conferred by the purchaser, would try the patience of most travelers. Friends interceded, but in vain ; till, at last, a representation was made to one of these important personages, that my wife was about to leave the city on a fixed day, and that being a foreigner she ought, out of courtesy, to be assisted ; an appeal which was successful, and the work was then undertaken and sent home with strict punctuality, neatly made, and every spare scrap of the material honestly returned, the charge being about equal to that of the first London dressmakers.

We remarked in some of the country towns of Massachusetts, where the income of the family was very moderate, that the young ladies indulged in extravagant dressing—40*l.*, for example, being paid for a shawl in one instance. Some of the richer class, who had returned from passing a year or two in Germany and England, had been much struck with the economical habits, in dress and in the luxuries of the table, of persons in easy circumstances there, and the example had not been lost on them.

Oct. 28.—Night after night the church bells have been tolling the alarm of fire, followed by the rattling of the heavy engines under the windows of our hotel. When I last resided here (1842), I was told that half of these conflagrations were caused by incendiaries, partly by boys for the mere love of mischief ; but no suspicions of this kind are now entertained. Most of the buildings are of wood, and it is hoped that the increasing use of brick in the private, and of granite in the public, buildings will lessen the evil. The combustibility of the wood of the white or Weymouth pine (*Pinus strobus*), largely employed in houses here, is said to exceed that of other kinds of timber.

CHAPTER X.

Boston.—Blind Asylum and Laura Bridgeman.—Respect for Freedom of Conscience.—Cemetery of Mount Auburn.—Channing's Cenotaph.—Episcopal Churches.—Unitarian Congregations.—Eminent Preachers.—Progress of Unitarians why slow.—Their Works reprinted in England.—Nothingarians.—Episcopalian Asceticism.—Separation of Religion and Politics.

DURING our stay at Boston we visited the Perkins' Institution, or Asylum for the Blind, and found Laura Bridgman, the girl who has been blind, deaf and dumb from infancy, much grown since we saw her four years ago. She is now sixteen, and looks very intelligent. She was reading when we entered, and we were told that formerly, when so engaged and alone, she used to make with one hand the signs of all the words which she felt out with the other, just as an illiterate beginner speaks aloud each sentence as he spells it. But the process of conveying the meaning of the words to her mind is now far too rapid for such delay, and the hand not occupied in reading remains motionless. We were afterward delighted to watch her while she was following the conversation of two other dumb children who were using the modern single-hand alphabet. She was able to comprehend all the ideas they were exchanging, and to overhear, as it were, every word they said, by making her fingers play, with fairy lightness, over theirs, with so slight a touch, as not in the least degree to interfere with the freedom of their motions. We saw her afterward talk with Dr. Howe, with great rapidity and animation, pointing out accurately the places on a map while he gave a lesson in geography. She indulged her curiosity in examining my wife's dress, and, taking her hand, told her which was her wedding ring, and then began to teach her the deaf and dumb alphabet. She is always aware whether it is a lady's hand she touches, and is shy toward a stranger of the other sex. As she is now in communication with no less than a hundred acquaintances, she has grown much more like other children than formerly.

We learnt from Dr. Howe that the task of carrying on her education has become more and more arduous, for she is naturally clever, and her reflective powers have unavoidably ripened much faster than the perceptive ; so that at an age when other children would be satisfied to accumulate facts by the use of their eyes, her chief curiosity is directed to know the causes of things. In reading history, for example, where there is usually a continued description of wars and battles, she must be told the motives for which men slaughter each other, and is so distressed at their wickedness, that she can scarcely be induced to pursue the study.

To be able to appreciate justly the judicious treatment of those to whose training she owes her wonderful progress, it would be necessary to be practically acquainted with the disappointments of persons who undertake to teach pupils who are simply blind, and not suffering, like Laura, under the double privation of the senses of sight and hearing.

Great pains had been taken to make one of the boys, whom we saw, have a correct idea of a horse ; he had got by rote a long list of characteristics, and had felt the animal, and the mortification of the master may be conceived on discovering that after all the child could not be sure whether the creature had three, four, or five legs. After a few days' intercourse with the blind, we no longer marvel that precocious children, who begin to read early and get by heart and recite long poems, or become knowing by keeping company with grown-up people, are so often overtaken or left behind by those who have been neglected, and have spent their time at play. For when the truants are supposed to be most idle, they may, in reality, be storing their minds with a multitude of facts, to give a detailed description of which to a student, in or out of a blind asylum, would fill volumes.

Dr. Howe told us of a blind Frenchman in the establishment, who could guess the age of strangers, by hearing their voices, much more accurately than he and others who could see as well as talk with them.

On looking over the annual reports of the trustees, I observed that on Sunday the pupils, about a hundred in number, and

belonging to various sects, attend public worship in several different churches, they themselves, or their parents, choosing some particular church. "Many of them," says the report, "attend Sabbath schools, and, as care is taken to exclude sectarian doctrines from the regular course of instruction, the opinions of the pupils respecting doctrinal matters in religion are formed upon the basis prescribed by the parents."

The assurance here given to the public is characteristic of a settled purpose, every where displayed by the New Englanders, to prevent their charitable bequests, as well as their great educational establishments, from becoming instruments of proselytizing, or serving as bribes, to tempt parents, pupils, or the poor to renounce any part of their hereditary creed for the sake of worldly advantages. Such conduct, implying great delicacy of feeling in matters of conscience, and a profound respect for the sacredness of religious obligations, is worthy of the descendants of men who went into exile, and braved the wilderness and the Indian tomahawk, rather than conform outwardly to creeds and rituals of which they disapproved.

Oct. 29.—Went to Cambridge to visit the cemetery of Mount Auburn, where a large extent of wild, unreclaimed, hilly ground, covered with oak and pine, has been inclosed for a public burial-place. From the highest eminence there is a fine view of the surrounding country. Since I was here in 1842, a chapel has been erected of granite, in the Gothic style, and in good taste, with painted glass from Edinburgh in the windows, and a handsome entrance gate. The chapel is to serve as a Westminster Abbey, Pantheon, or Walhalla, to contain statues, busts, and monuments of distinguished men. A cenotaph has been placed in the grounds in honor of Dr. Channing, with an inscription written by a friend, in a plain, unambitious style, such as Channing himself would have wished. I rejoiced to hear that as his funeral procession was passing through the streets of Boston, the bell of the Roman Catholic chapel was tolled among the rest, and I recollected with pleasure the conversations I had had with him in 1841. They who witness the impulse given by him to the cause of popular education, the increasing liberality of

sentiment in New England on matters of religion, and the great popularity of his works, might desire to inscribe on his tomb—

“E’en in *his* ashes live their wonted fires.”

Some of the Episcopal churches in Boston are conducted on the high, and others on the low church model; and the Tractarian movement has had the effect here, as in England, not of establishing uniformity by a strict adherence to one rubric, but of producing a much greater variety than formerly in the manner of performing public worship. If, besides striking out the Athanasian Creed, the American Episcopal Church had omitted the Nicene Creed, as they first proposed in 1785, and had condensed and abridged the Thirty-nine Articles to twenty, measures from which they were dissuaded by the English hierarchy, from whose hands their first bishops required consecration, a schism might probably have taken place when the Tractarian movement occurred, and they might have separated into two churches far more distinct than that of the Drummondites and their opponents, or the partisans of the Scotch and English rubric north of the Tweed.

In the Stone, or King’s Chapel, the English liturgy is used, with such omissions and alterations as are required to suit the opinions of Unitarians, for that chapel was transferred from the Anglican to the Unitarian Church by the conversion of the minister and majority of the pew-holders. But in almost all the other Unitarian churches, the service resembles in form that of the established church of Scotland. Before my first visit to Boston, I had been led to believe that the majority of the citizens were Unitarians; whereas I found, on inquiry, that although they may exceed in number any other single sect, and comprise not a few of the richest citizens, they do not constitute above one-fifth of the whole population, and scarcely more than a tenth in Massachusetts generally. There is, however, another sect, calling themselves Christians (pronounced Chrystians), prevailing largely in New England, which denies the doctrine of the Trinity, and I am told that many who worship in other “orthodox” congregations are heterodox on this point, although they do not choose to become separatists. One of them observed

to me that he thought it nearly as presumptuous to acquiesce in the negative as in the affirmative of the propositions laid down on this subject in the Athanasian Creed. "We are," he said, "like children born blind, disputing about colors."

The prominent position occupied by the Unitarians arises, not from their number, nor their wealth, however considerable this may be, but from their talent, earnestness, and knowledge. Many of the leading minds in the Union belong to this sect, and among them, Channing, Sparks, Dewey, and other well-known authors, have been converts from the Congregationalists.

To have no creed, no standard to rally round, no fixed canons of interpretation of Scripture, is said to be fatal to their progress. Yet one of their body remarked to me that they might be well satisfied that they were gaining ground, when it could be said that in the last thirty years (since 1815) the number of their ministers had increased in a tenfold ratio, or from fifty to five hundred, whereas the population had only doubled in twenty-five years. He also reminded me that their ranks are scarcely ever recruited from foreign emigrants, from whom the Romanists, Presbyterians, Methodists, Baptists, and Episcopalians annually draw large accessions. A more kindly feeling has of late years sprung up between the Unitarians and Congregationalists, because some of the most eminent writers of both sects have joined in defending themselves against a common adversary, namely, those rationalists who go so far as to deny the historical evidence of the miracles related in the New Testament, and who, in some other points, depart more widely from the Unitarian standard, than does the latter from that of Rome itself. Norton, author of "The Genuineness of the Gospels" may be mentioned, as one of the celebrated Unitarian divines who has extorted from the more liberal members of all "orthodox" denominations the praise of being a defender of the faith.

In the course of my two visits to the United States, I enjoyed opportunities of hearing sermons preached by many of the most eminent Unitarians—among them were Channing, Henry Ware, Dewey, Bellows, Putnam, and Gannet—and was much struck, not only with their good sense and erudition, but with the fervor

of their eloquence. I had been given to understand that I should find a want of warmth in their discourses, that they were too cold and philosophical, and wanting in devotional feeling ; but, on the contrary, there were many of them most impressive, full of earnestness and zeal, as well as of original views and instruction. One of the chief characteristics was the rare allusion made to the Old Testament, or to controverted points of doctrine, or to the mysteries of the Christian religion, and the frequency with which they dwelt on the moral precepts and practical lessons of the Gospels, especially the preaching of Christ himself. Occasional exhortations to the faithful, cheerfully to endure obloquy for the sake of truth, and to pay no court to popularity, an undue craving for which was, they said, the bane of a democracy, convinced me how much the idea of their standing in a hostile position to a large numerical majority of the community was present to their minds. On some occasions, however, reference was naturally made to doctrinal points, particularly to the humanity of Christ, his kindred nature, and its distinctness from that of the eternal, omnipotent, and incorporeal Spirit which framed the universe ; but chiefly on occasions when the orator was desirous of awakening in the hearts of his hearers emotions of tenderness, pity, gratitude, and love, by dwelling on the bodily sufferings of the Redeemer on the cross. More than once have I seen these appeals produce so deep a sensation, as to move a highly educated audience to tears ; and I came away assured that they who imagine this form of Christianity to be essentially cold, lifeless, and incapable of reaching the heart, or of powerfully influencing the conduct of men, can never have enjoyed opportunities of listening to their most gifted preachers, or had a large personal intercourse with the members of the sect.

When I wished to purchase a copy of the writings of Channing and of Dewey in Boston, I was told that I could obtain more complete and cheaper editions in London than in the United States ; a proof, not only how much they are read in England, but that the pecuniary interests of British authors are not the only ones which suffer by the want of an international copyright. On inquiring of the publishers at Boston, as to the extent of the

sale of Channing's works in the United States, I was informed that several of them, published separately, had gone through many editions, and no less than 9000 copies of the whole, in six volumes, had been sold already (1845), and the demand for them was on the increase, many copies having been recently ordered from distant places in the West, such as St. Louis and Chicago. A reprint of the same edition at Glasgow, has circulated widely in England, and the reading of it in America is by no means confined to Unitarians, the divines of other denominations, especially the Calvinists, being desirous to know what has been written against them by their great antagonist.

Having been informed by one of my friends that about a fifth of all the New Englanders were "Nothingarians," I tried, but with little success, to discover the strict meaning of the term. Nothing seems more vague and indefinite than the manner of its application. I fancied at first that it might signify deists or infidels, or persons careless about any religious faith, or who were not church-goers; but, although it may sometimes signify one or all of these, I found it was usually quite otherwise. The term latitudinarian, used in a good sense, appeared most commonly to convey the meaning; for a Nothingarian, I was informed, was indifferent whether he attended a Baptist, Methodist, Presbyterian, or Congregationalist church, and was often equally inclined to contribute money liberally to any one or all of them. A Methodist writer of some eminence remarked to me, that the range of doctrines embraced by these denominations, was not greater, if so great, as that which comprehended within the same pale a high tractarian and a low churchman, and that he who would indifferently subscribe to these two forms of Episcopalianism, might with equal propriety be styled a Nothingarian. In other cases I ascertained that the term Nothingarian was simply used for persons who, though they attended worship regularly in some church, had never been communicants. One of the latter, an Episcopalian, once said to me, "I have never joined any church;" and then in explanation added, "it would be hard at my age to renounce society, dancing, and public amusements." I expostulated soon afterward with an Episcopalian minister in Virginia, observing

that such ideas of austerity and asceticism were not consistent with the spirit of the Anglican Church. This he admitted, but pleaded the absolute necessity of extreme strictness to enable them to efface the stigma transmitted to them from colonial times ; for in the Southern states, particularly in Virginia, the patronage of the mother country, in filling up livings, was for a century scandalously abused, and so many young men of profligate and immoral habits were sent out, as to create a strong prejudice against the Established Church of England in the minds of the more zealous and sincere religionists.

On one of my voyages home from America, an officer of rank in the British army lamented that the governor of one of our colonies had lately appointed as Attorney-General one who was an atheist. I told him I knew the lawyer in question to be a zealous Baptist. "Yes," he replied, "Baptist, Atheist, or something of that sort." I have no doubt that if this gallant colonel should visit New England, his estimate of the proportion of Nothingarians in the population would be very liberal.

Traveling as I did in 1845-6, through a large part of the Union, immediately after the close of the protracted contest for the Presidency, when the votes in favor of Mr. Clay and Mr. Polk had been nearly balanced, I was surprised to find in the north, south, and west, how few of the Americans with whom I conversed as traveling companions, could tell me to what denomination of Christians these two gentlemen belonged. I at length ascertained that one of them was an Episcopalian, and the other a Presbyterian. This ignorance could by no means be set down to indifferentism. Had one of the candidates been a man of immoral character, it would have materially affected his chance of success, or probably if he had been suspected of indifference about religion, and not a few of the politicians whom I questioned were strongly imbued with sectarian feelings ; but it was clear that in the choice of a first magistrate their minds had been wholly occupied with other considerations, and the separation of religion and politics, though far from being as complete as might be wished, is certainly one of the healthy features of the working of the American institutions

CHAPTER XI.

Boston.—Whig Caucus.—Speech of Mr. Webster.—Politics in Massachusetts.—Election of Governor and Representatives.—Thanksgiving Day and Governor's Proclamation.—Absence of Pauperism.—Irish Repeal Meeting.—New England Sympathizer.—Visit to a Free School.—State Education.—Pay and Social Rank of Teachers.—Importance of the Profession.—Rapid Progress and Effects of Educational Movement.—Popular Lectures.—Lending Libraries.

Nov. 10, 1845.—WENT to a great meeting of about 3500 people in Faneuil Hall, where they were discussing the election of the governor and executive officers of the State. It was called a Whig caucus, being only attended by persons of one political party, or if others were present, they were there only by courtesy, and expected to be silent, and not interrupt the harmony of the proceedings. When I entered, I found Mr. Daniel Webster on his legs. Since the arrival of the last mail steamer from Liverpool fears had been entertained that the pretensions of the Cabinet of Washington to the whole, or greater part of Oregon, must end in a war between England and the United States. This topic was therefore naturally uppermost in the minds of a peace-loving and commercial community. The cautious and measured expressions of the Whig statesman when out of office, and his evident sense of the serious responsibility incurred by one who should involve two great nations in war, formed a striking contrast to the unguarded tone of the late inaugural address of the President of the Union on the same subject. I was amused to hear frequent references made to the recent debate in the British House of Commons, the exact words of Sir Robert Peel and others being quoted and commented upon, just as if the discussion had been simply adjourned from Westminster to Boston. The orator rebuked the blustering tone of defiance, in which demagogues and newspapers in some parts of the Union were indulging against England. He then condemned the new constitution

of Texas, which prohibits the Legislature from ever setting the bondman free, and deprecated the diversion made from the ranks of the Whigs by the Abolitionists, who, by setting up a candidate of their own for the Presidentship, had enabled their opponents to carry a man pledged to the annexation of Texas. At the same time he gave this party the credit of being as conscientious as they were impracticable. He then alluded to another "separate organization," as it is here called, namely, that of the "Native Americans," which had in like manner defeated the object they had in view, by dividing the Whigs, the majority of whom agreed in thinking the present naturalization laws very defective, and that a stop should be put to fraudulent voting. The introduction of a long Latin quotation from Cicero showed that the speaker reckoned on having a considerable number at least of well-educated men in his large audience. The frequent mention of the name of Governor George N. Briggs, the initial letter only of the second appellative being pronounced, grated strangely on my English ear; for though we do not trouble ourselves to learn all the Christian names of our best actors, as Mr. T. P. Cooke and Miss M. Tree, we are never so laconic and unceremonious in dealing with eminent public men. I had asked several persons what K. signified in the name of the President, James K. Polk, before I ascertained that it meant Knox; but, in the United States, it might have no other signification than the letter K.; for, when first in Boston, I requested a friend to tell me what B. stood for in his name, and he replied, "For nothing; my surname was so common a one, that letters addressed to me were often mis-sent, so I got the Post-Office to allow me to adopt the letter B."

I came away from this and other public meetings convinced that the style of speaking of Mr. Webster, Mr. Everett, Mr. Winthrop, and some others, would take greatly in England, both in and out of parliament. It was also satisfactory to reflect, that in Massachusetts, where the whole population is more educated than elsewhere, and more Anglo-American, having less of recent foreign admixture, whether European or African, the dominant party is against the extension of slavery to new regions like Texas,

against territorial aggrandizement, whether in the north or south, and against war. They are in a minority it is true : but each state in the Union has such a separate and independent position, that, like a distinct nation, it can continue to cherish its own principles and institutions, and set an example to the rest, which they may in time learn to imitate. The Whigs were originally in favor of more centralization, or of giving increased power to the federal executive, while the democratic party did all they could to weaken the central power, and successfully contended for the sovereign rights and privileges of each member of the confederation. In so doing they have perhaps inadvertently, and without seeing the bearing of their policy, guarded the older and more advanced commonwealths from being too much controlled and kept down by the ascendancy of newer and ruder states.

A few days later, I went to see the electors give their votes. Perfect order and good-humor prevailed, although the contest was a keen one. As I approached the poll, the agents of different committees, supposing that I might be an elector, put into my hands printed lists, containing the names of all the candidates for the offices of Governor, Lieutenant-governor, five senators, and thirty-five representatives. Every registered voter is entitled to put one of these "tickets" into the balloting box. The real struggle was between the Whigs and Democrats, the former of whom carried the day ; but, besides their tickets, two others were presented to me, one called the Native American, and the other the Working Man's ticket. The latter had for its emblem a naked arm, wielding a hammer, and for its motto, "The strong right arm of labor." The five senators proposed in this list, consisted of two printers, a carpenter, a blacksmith, and a surveyor, and among the representatives were four shoemakers, one tailor, eight carpenters, four printers, an engineer, &c.

I heard Americans regret, that besides caucuses there are no public meetings here where matters are debated by persons of opposite parties and opinions, such as are sometimes held in England. I was surprised to hear that such experiments were of rare occurrence in a country where men opposed in politics frequently argue with so much good temper, and where, in so

many hotels and taverns, newspapers of all shades of opinion are taken in just as in our great club-houses in London, affording opportunities of knowing what can be said on all sides of every question. I have since learnt from correspondents, that, in a period of political excitement, the people in many parts of Massachusetts have begun to engage different lecturers to explain to them the opposite facts, views, and arguments adduced for and against the chief subjects under discussion.

Nov. 27.—This day, Thanksgiving Day, and the 4th of July, Independence Day, are the only two holidays in the American calendar. The Governor has, they say, as usual, made a bad guess in regard to weather, for there is a pelting rain. It was indeed ascertained by actual measurement at Cambridge, that in nineteen hours between yesterday evening and to-day, at four o'clock, there has fallen no less than four and a half inches of rain, or one-eighth part of the average of the whole year, which amounts to thirty-six inches at Boston. By this unlucky accident many a family gathering has been interrupted, and relatives have been unable to come in from the country to join a merry meeting, corresponding to that of an English Christmas Day. Many a sermon, also, carefully prepared for the occasion, has been preached to empty pews; but the newspapers inform us, that some of these effusions will be repeated on Sunday next. Sixteen states have now adopted this New England custom of appointing a day for thanksgiving, and it is spreading fast, having already reached South Carolina, and even Louisiana. A month before, I had heard with interest the Governor's proclamation, read in all the churches, full of good feeling and good sense. He called on the people of the state, now that the harvest was gathered in, to praise the God of Heaven for his bounties, and in their cheerful family circles to render to Him a tribute of thanksgiving for His goodness :—

“Let us praise Him, that, under His protecting Providence, the institutions of state, of religion, of learning and education, established by the prudence and wisdom of our fathers, under which their children have been prosperous and happy, have come down to us unimpaired and in full vigor :

“That the various classes of our citizens, under the mild and equal

government of laws made by themselves, pursue, unmolested, upon the land and upon the sea, their peaceful occupations :

“ That although we have heard the distant rumor, and seen the preparations for war our common country is yet at peace with the world.”

In no part of the address was any claim set up to the peculiar favor of God, or his special intervention in chastising the nation for particular transgressions ; nothing to imply that He does not govern the world by fixed and general laws, moral and physical, which it is our duty to study and obey, and which, if we disobey, whether from ignorance or willfulness, will often be made the instruments of our punishment even in this world. The proclamation concluded thus, in the good old style :

“ Given at the Council Chamber, in Boston, this 1st day of October, in the year of our Lord one thousand eight hundred and forty-five, and of the Independence of the United States the seventieth.

“ GEORGE N. BRIGGS.

“ By his Excellency the Governor, with the advice and consent of the Council.

“ JOHN G. PALFREY, Secretary.

“ God save the Commonwealth of Massachusetts.”

The almost entire absence of pauperism even in the large towns, except among the old and infirm, forms a striking point of contrast between the state of things in New England and in Europe. One of my friends, who is serving on a committee in Boston to see that the poor who are too old to work have all necessary comforts, has just ordered, as one of the indispensables, a carpet for the bed-side of an old woman. Yet, within five miles of Boston, some of the newly arrived emigrants of the lower class of Irish, may now be seen living in mud huts by the side of railway cuttings, which they are employed to dig, who are regarded by many of the native-born laborers with no small disgust, not only as the most ignorant and superstitious of mortals, but as likely, by their competition, to bring down the general standard of wages. The rich capitalists, on the other hand, confess to me, that they know not how they could get on with the construction of public works, and obtain good interest for their money, were they deprived of this constant influx of foreign labor.

They speak also with kindness of the Irish, saying they are most willing to work hard, keep their temperance vows, and, in spite of the considerable sums drawn from them by the Catholic priests, are putting by largely out of their earnings into the Savings Banks. It is also agreed that they are most generous to their poor relations in Ireland, remitting money to them annually, and sometimes enough to enable them to pay their passage across the Atlantic. At the same time they confess, with much concern, that the efforts now making by the people at large, aided by the wealthiest class, to establish a good system of state instruction, and to raise the moral and intellectual character of the millions, must be retarded by the intrusion of so many rude and ignorant settlers. Among other mischiefs, the political passions and party feelings of a foreign country are intruded into the political arena, and a tempting field laid open to demagogues of the lowest order.

Returning home one night after dark from a party, I heard music in a large public building, and, being told it was a repeal meeting held by the Irish, had the curiosity to look in. After a piece of instrumental music had been performed, an orator, with an Irish accent, addressed the crowd on the sufferings of the Irish people precisely as if he had forgotten on which side of the Atlantic he then was. He dwelt on the tyranny of the Saxons, and spoke of repeal as the only means of emancipating their country from British domination, and solicited money in aid of the great cause. Seeing, with no small surprise, an industrious native-born artisan of Boston, whom I knew, in the crowd, I asked him, as we went out together, whether he approved of the objects of the meeting. He belonged to the extreme democratic party, and answered, very coolly and quite seriously, "We hope that we may one day be able to do for Ireland what France did for the United States in our great struggle for independence."

On my return home, I found that my pocket had been picked of a purse containing fortunately a few dollars only, an accident for which I got no commiseration, as my friends hoped it would be a lesson to me to keep better company in future.

That a humble mechanic of Boston should be found who

indulged in wild projects for redressing the wrongs of the Hibernian race, ought not to create wonder, when I state that before the end of the year 1845, a resolution was moved in Congress, by Mr. M'Connell, one of the members for Alabama, after he had been talking much about the spirit of Christian love and peaceful brotherhood which distinguished the American republic, to the following effect:—"That the Irish, ground down by British misrule, have for centuries groaned under a foreign monarchical yoke, and are now entitled to share the blessings of our free institutions." I am happy to say, however, that this absurd motion was not even seconded.

The population of Boston, exclusive of Charlestown, Roxbury, and Cambridge (which may be regarded as suburbs), is at present about 115,000, of which 8000 are Roman Catholics, chiefly of Irish extraction; but there are besides many Scotch and English emigrants in the city. In order to prove to me how much may be done to advance them in civilization in a single generation, I was taken to a school where nine-tenths of all the children were of parents who had come out from England or Ireland. It was not an examination day, and our visit was wholly unexpected. We entered a suite of three well-aired rooms, containing 550 girls. There were nine teachers in the room. The pupils were all between the ages of nine and thirteen, the greater portion of them the daughters of poor laborers, but some of them of parents in good circumstances. Each scholar was seated on a separate chair with a back to it, the chair being immovably fixed to the ground to prevent noise. There was no uniformity of costume, but evidently much attention to personal neatness, nearly all of them more dressed than would be thought in good taste in children of a corresponding class in England. They had begun their studies at nine o'clock in the morning, and are to be six hours at school, studying fifty minutes at a time, and then being allowed ten minutes for play in a yard adjoining. I observed some of the girls very intent on their task, leaning on their elbows and in other careless attitudes, and we were told by the masters that they avoid as much as possible finding fault with them on minor points when they are studying. The only punishments are a

reprimand before the class, and keeping them back after school hours. The look of intelligence in the countenances of the greater number of them was a most pleasing sight. In one of the upper classes they were reading, when we went in, a passage from Paley "On Sleep," and I was asked to select at random from the school-books some poem which the girls might read each in their turn. I chose Gray's *Elegy in a Churchyard*, as being none of the simplest for young persons to understand. They each read a verse distinctly, and many of them most gracefully, and explained correctly the meaning of nearly all the words and allusions on which I questioned them.

We afterward heard the girls of the arithmetic class examined in algebra, and their answers showed that much pains had been taken to make them comprehend the principles on which the methods of calculation depended. We then visited a boy's grammar school, and found there 420 Protestant and 100 Catholic boys educated together. We remarked that they had a less refined appearance and were less forward in their education than the girls whom we had just seen, of the same age, and taken from the same class in society. In explanation I was told that it is impossible to give the boys as much schooling, because they can earn money for their parents at an earlier age.

The number of public or free schools in Massachusetts in 1845-6, for a population of 800,000 souls, was about 3500, and the number of male teachers 2585, and of female 5000, which would allow a teacher for each twenty-five or thirty children, as many as they can well attend to. The sum raised by direct taxation for the wages and board of the tutors, and for fuel for the schools, is upward of 600,000 dollars, or 120,000 guineas; but this is exclusive of all expenditure for school-houses, libraries, and apparatus, for which other funds are appropriated, and every year a great number of newer and finer buildings are erected.

Upon the whole about one million of dollars is spent in teaching a population of 800,000 souls, independently of the sums expended on private instruction, which in the city of Boston is supposed to be equal to the money levied by taxes for the free

schools, or 260,000 dollars (55,000*l.*). If we were to enforce a school-rate in Great Britain, bearing the same proportion to our population of twenty-eight millions, the tax would amount annually to more than seven millions sterling, and would then be far less effective, owing to the higher cost of living, and the comparative average standard of incomes among professional and official men.

In Boston the master of the Latin School, where boys are fitted for college, and the master of the High School, where they are taught French, mathematics, and other branches preparatory to a mercantile career, receive each 2400 dollars (500*l.*), the governor of the state having only 2500 dollars. Their assistants are paid from 1800 to 700 dollars (370*l.* to 150*l.*). The masters of the grammar schools, where boys and girls are taught in separate school-houses English literature, general history, and algebra, have salaries of 1500 dollars (315*l.*), their male assistants 600 (125*l.*), and their female 300 (65*l.*). The mistresses of schools, where children from four to seven years old are taught to read, receive 325 dollars (70*l.*). In Salem, Roxbury, Lowell, and other large towns, where living is more moderate, the salaries are about one-third less; and in rural districts, where the schools are not kept open for the whole year, the wages of the teachers are still smaller.

The county of Worcester, Massachusetts, for example, has a population of about 100,000, and the number of schools in it is about 543, the schools being kept open some four, others twelve months, and on an average six months in the year. The male teachers, of whom there are about 500, receive 30 dollars (6*l.* 6*s.*) a month; the women teachers, of whom there are 700, about 13 dollars a month (2*l.* 15*s.*).

Among other changes, we are told, in the State Reports, that the number of female teachers has been augmented more rapidly than that of the males, especially in schools where the youngest pupils are taught, because the services of women cost less, and are found to be equally, if not more, efficient. But my informants in general were desirous that I should understand that the success of their plan of national education does not depend so much

on the number and pay of the teachers as on the interest taken in it by the entire population, who faithfully devote more time and thought to the management of the schools than to any other public duty.

The cost of living in New England may, on the whole, be taken to be at least one-third less than in Great Britain; and the spirit of the political institutions, the frugal manner of conducting the government, the habits of society, and a greater general equality of fortunes, where the custom of primogeniture does not prevail, causes the relative value of incomes such as those above enumerated, to confer a more respectable social position than they would do with us. I was assured that in the country towns the schoolmasters associate with the upper class of citizens, holding as good a place in society as the clergy and medical men, but not ranking so high as the lawyers.

On this point, however (the relative position of the teachers), I found great differences of opinion among my informants; but a general agreement that their pay and social rank ought to be raised, so as to enable the state to command the services of men and women of the best abilities and accomplishments.

Channing had, for many years before his death, insisted on the want of institutions to teach the art of teaching. There are now several of these normal schools in full activity, where a course of three years' instruction is given. As yet, however, few can afford to attend more than one year; but even this short training has greatly raised the general standard of efficacy, and the beneficial influence has extended even to schoolmasters who have not yet availed themselves of the new training. The people have, in fact, responded generously to the eloquent exhortations of Channing, not to economize, for the sake of leaving a fortune to the rising generation, at the expense of starving their intellects and impoverishing their hearts. It was a common prejudice, he said, and a fatal error to imagine that the most ordinary abilities are competent to the office of teaching the young. "Their vocation, on the contrary, is more noble even than that of the statesman, and demands higher powers, great judgment, and a capacity of comprehending the laws of thought and moral action, and the

various springs and motives by which the child may be roused to the most vigorous use of all its faculties." *

Nevertheless, some of his most enthusiastic admirers confessed to me that they could not assent to his doctrine, that "to teach, whether by word or action, is the highest function on earth," unless young men and women, between the ages of seventeen and twenty-two, are the pupils, instead of children between four and sixteen. They expressed their misgivings and fears that the business of the schoolmaster, who is to teach reading and writing and the elements of knowledge, must check the development of the mind, if not tend to narrow its powers. As the real friends of progress, they had come reluctantly to this conclusion; but they admitted that to despond at present would be premature. The experiment of promoting the teacher of every school to that rank in society which the importance of his duties entitles him to hold, and of training him in his art, has never yet been tried.

We have yet to learn what may be the effect of encouraging men of superior energy and talent, who have a natural taste for the calling, to fit themselves for the profession. It must doubtless entail, like every other liberal calling, such as the legal, medical, clerical, military, or mercantile, a certain amount of drudgery and routine of business; but, like all these departments, it may afford a field for the enlargement of the mind, if they who exercise it enjoy, in a like degree, access to the best society, can exchange thoughts with the most cultivated minds in their district, and have leisure allowed them for self-culture, together with a reasonable hope, if they distinguish themselves, of being promoted to posts of honor and emolument, not in other professions, such as the clerical, but in their own. The high schools of Boston, supported by the state, are now so well managed, that some of my friends, who would grudge no expense to engage for their sons the best instructors, send their boys to them as superior to any of the private establishments supported by the rich at great cost. The idea has been recently agitated of providing similar free-schools and colleges for girls, because they

* Glasgow Ed., vol i. p. 391.

could more easily be induced to stay until the age of sixteen. Young men, it is said, would hate nothing so much as to find themselves inferior in education to the women of their own age and station.

Of late years the improvement of the schools has been so rapid, that objects which were thought Utopian even when Channing began his career, have been realized; and the more sanguine spirits, among whom Mr. Horace Mann, Secretary of the Public Board of Education, stands pre-eminent, continue to set before the eyes of the public an ideal standard so much more elevated, as to make all that has hitherto been accomplished appear as nothing. The taxes self-imposed by the people for educational purposes are still annually on the increase, and the beneficial effects of the system are very perceptible. In all the large towns Lyceums have been established, where courses of lectures are given every winter, and the qualifications of the teachers who deliver them are much higher than formerly. Both the intellectual and social feelings of every class are cultivated by these evening meetings, and it is acknowledged that with the increased taste for reading, cherished by such instruction, habits of greater temperance and order, and higher ideas of comfort, have steadily kept pace.

Eight years ago (1838) Channing observed that "millions, wearied by their day's work, have been chained to the pages of Walter Scott, and have owed some bright evening hours and balmier sleep to his magical creations;" and he pointed out how many of the laboring classes took delight in history and biography, descriptions of nature, in travels and in poetry, as well as graver works. In his Franklin Lecture, addressed, in 1838, to a large body of mechanics and men earning their livelihood "by manual labor," he says, "Books are the true levelers, giving to all who will faithfully use them the society and spiritual presence of the best and greatest of our race; so that an individual may be excluded from what is called good society, and yet not pine for want of intellectual companionship."*

When I asked how it happened that in so populous and rich

* Channing, vol. ii. p. 378.

a city as Boston there was at present (October, 1845) no regular theater, I was told, among other reasons, that if I went into the houses of persons of the middle and even humblest class, I should often find the father of a family, instead of seeking excitement in a shilling gallery, reading to his wife and four or five children one of the best modern novels, which he has purchased for twenty-five cents; whereas, if they could all have left home, he could not for many times that sum have taken them to the play. They often buy, in two or three successive numbers of a penny newspaper, entire reprints of the tales of Dickens, Bulwer, or other popular writers.

Dana, now a lawyer in Boston, and whose acquaintance I had the pleasure of making there, has, in his singularly interesting and original work, entitled "Two Years before the Mast," not only disclosed to us a lively picture of life in the fore-castle, but has shown incidentally how much a crew, composed of the most unpromising materials, rough and illiterate, and recruited at random from the merchant service of different nations, could be improved by associating with a single well-educated messmate. He was able, on one of the few holidays which were granted to them in California by the most tyrannical of captains, to keep them from going ashore, where they would have indulged in dissipation, by reading to them for hours Scott's historical tale of "Woodstock." We ought scarcely, then, to wonder, after what I have said of the common schools of this city, that crowded audiences should be drawn night after night, through the whole winter, in spite of frost and snow, from the class of laborers and mechanics, mingled with those of higher station, to listen with deep interest to lectures on natural theology, zoology, geology, the writings of Shakspeare, the beauties of "Paradise Lost," the peculiar excellencies of "Comus" and "Lycidas," treated in an elevated style by men who would be heard with pleasure by the most refined audiences in London.

Still, however, I hear many complaints that there is a want of public amusements to give relief to the minds of the multitude, whose daily employments are so monotonous that they require, far more than the rich, opportunities of innocent recreation, such

as concerts, dancing, and the theater might give, under proper regulations ; for these are now usually discouraged by religionists, who can find no other substitute for them but sermons and reiterated church services.

Among the signs of the times, and of the increasing taste for reading, the great number of lending libraries in every district must not be forgotten. Toward the purchase of these the State grants a certain sum, if an equal amount be subscribed by the inhabitants. They are left to their own choice in the purchase of books ; and the best English poets and novelists are almost always to be met with in each collection, and works of biography, history, travels, natural history, and science. The selection is carefully made with reference to what the people will read, and not what men of higher education and station think they ought to read.

CHAPTER XII.

Boston, Popular Education, continued.—Patronage of Universities and Science.—Channing on Milton.—Milton's Scheme of teaching the Natural Sciences.—New England Free Schools.—Their Origin.—First Puritan Settlers not illiterate.—Sincerity of their Religious Faith.—Schools founded in Seventeenth Century in Massachusetts.—Discouraged in Virginia.—Sir W. Berkeley's Letter.—Pastor Robinson's Views of Progress in Religion.—Organization of Congregational Churches.—No Penalties for Dissent.—Provision made for future Variations in Creeds.—Mode of Working exemplified.—Impossibility of concealing Truths relating to Religion from an educated Population.—Gain to the Higher Classes, especially the Clergy.—New Theological Colleges.—The Lower Orders not rendered indolent, discontented, or irreligious by Education.—Peculiar Stimulus to Popular Instruction in the United States.

It was naturally to be apprehended that, in a pure democracy, or where the suffrage is nearly universal, the patronage of the state would be almost entirely confined to providing means for mere primary education, such as reading, writing, and ciphering. But such is not the case in Massachusetts, although the annual grants made to the three universities of Harvard, Amherst, and Williams, are now becoming inadequate to the growing wants of a more advanced community, and strenuous exertions are making to enlarge them. In the mean time, private bequests and donations have of late years poured in upon Harvard University from year to year, some of them on a truly munificent scale. Since my first visit to Cambridge, professorships of botany, comparative anatomy, and chemistry have been founded. There was previously a considerable staff for the teaching of literature, law, and medicine; and lately an entire new department for engineering, natural philosophy, chemistry, geology, mineralogy, and natural history, in their application to the arts, has been instituted. One individual, Mr. Abbott Lawrence, a gentleman still in the prime of life, has contributed no less a sum than 100,000 dollars (20,000 guineas) toward the support

of this department. One of the new chairs is now filled by a zoologist of the highest European reputation, Professor Agassiz. A splendid bequest also, of equal amount (100,000 dollars), has recently been made to the Cambridge Observatory, for which the country had already obtained, at great cost, a large telescope, which has resolved the great nebula in Orion, and has enabled the astronomer, Mr. Bond, simultaneously with an English observer, Mr. Lassell, to discover a new satellite of Saturn.

That the State, however, will not be checked by any narrow utilitarian views in its patronage of the university and the higher departments of literature and science, we may confidently infer from the grants made so long ago as March, 1830, by the frugal Legislature of Massachusetts, for a trigonometrical survey, and for geological, botanical, and zoological explorations of the country, executed by men whose published reports prove them to have been worthy of the trust. It was to be expected that some demagogues would attempt to persuade the people that such an expenditure of public money was profligate in the extreme, and that as the universities have a dangerous aristocratic tendency, so these liberal appropriations of funds for scientific objects were an evidence that the Whig party were willing to indulge the fancies of the few at the charge of the many. Accordingly, one orator harangued the fishermen of Cape Cod on this topic, saying that the government had paid 1500 dollars out of the Treasury to remunerate Dr. Storer—for what? for giving Latin names to some of the best known fish; for christening the common cod *Morrhua americana*, the shad *Alosa vulgaris*, and the fall herring *Clupea vulgaris*. His electioneering tactics did not succeed; but might they not have gained him many votes in certain English constituencies? Year after year, subsequently to 1837, the columns of “the leading journal” of Great Britain were filled with attacks in precisely the same style of low and ignorant ridicule against the British Association, and the memoirs of some of the ablest writers in Europe on natural history and science, who were assailed with vulgar abuse. Such articles would not have been repeated so perseveringly, nor have found an echo in the “British Critic” and several magazines, had they not found sym-

pathy in the minds of a large class of readers, who ought, by their station, to have been less prejudiced, and who, in reality, have no bigoted aversion to science itself, but simply dread the effects of its dissemination among the people at large.

It is remarkable that a writer of such genius and so enlarged a mind as Channing, who was always aiming to furnish the multitude with sources of improvement and recreation, should have dwelt so little on the important part which natural history and the physical sciences might play, if once the tastes of the million were turned to their study and cultivation. From several passages in his works, it is evident that he had never been imbued with the slightest knowledge or feeling for such pursuits; and this is apparent even in his splendid essay on Milton, one of the most profound, brilliant, and philosophical dissertations in the English language. Dr. Johnson, while he had paid a just homage to the transcendent genius of the great poet and the charms of his verse, had allowed his party feelings and bigotry to blind him to all that was pure and exalted in Milton's character. Channing, in his vindication, pointed out how Johnson, with all his strength of thought and reverence for virtue and religion, his vigorous logic, and practical wisdom, wanted enthusiasm and lofty sentiment. Hence, his passions engaged him in the unworthy task of obscuring the brighter glory of one of the best and most virtuous of men. But the American champion of the illustrious bard fails to remark that Milton was also two centuries in advance of the age in which he lived, in his appreciation of the share which the study of nature ought to hold in the training of the youthful mind. Of Milton's scheme for enlarging the ordinary system of teaching, proposed after he had himself been practically engaged in the task as a schoolmaster, the lexicographer spoke, as might have been anticipated, in terms of disparagement bordering on contempt. He treated Milton, in fact, as a mere empiric and visionary projector, observing that "it was his purpose to teach boys something more solid than the common literature of schools, by reading those authors that treat of physical subjects."—"The poet Cowley had formed a similar plan in his imaginary college; but the knowledge of external nature, and the

sciences which that knowledge requires, are not the great or the frequent business of the human mind : and we ought not" he adds, " to turn off attention from life to nature, as if we were placed here to watch the growth of plants, or the motions of the stars."

That a violent shock had been given in the sixteenth century to certain time-honored dogmas, by what is here slightly called " watching the motions of the stars," was an historical fact with which Johnson was of course familiar ; but if it had been adduced to prove that they who exercise their reasoning powers, in interpreting the great book of nature, are constantly arriving at new truths, and occasionally required to modify preconceived opinions, or that when habitually engaged in such discipline, they often acquire independent habits of thought, applicable to other departments of human learning, such arguments would by no means have propitiated the critic, or have induced him to moderate his disapprobation of the proposed innovations. In the mind of Johnson there was a leaning to superstition, and no one was more content to leave the pupil to tread forever in beaten paths, and to cherish extreme reverence for authority, for which end the whole system then in vogue in the English schools and colleges was admirably conceived. For it confined the studies of young men, up to the age of twenty-two, as far as possible to the non-progressive departments of knowledge, to the ancient models of classical excellence, whether in poetry or prose, to theological treatises, to the history and philosophy of the ancients rather than the moderns, and to pure mathematics rather than their application to physics. No modern writer was more free from fear of inquiry, more anxious to teach the millions to think and reason for themselves, no one ever looked forward more enthusiastically to the future growth and development of the human mind, than Channing. If his own education had not been cast in an antique mold, he would have held up Milton as a model for imitation, not only for his love of classical lore and poetry, but for his wish to cultivate a knowledge of the works of nature.

Certainly no people ever started with brighter prospects of uniting the promotion of both these departments, than the people

of New England at this moment. Of the free schools which they have founded, and the plan of education adopted by them for children of all sects and stations in society, they feel justly proud, for it is the most original thing which America has yet produced. The causes of their extraordinary success and recent progress, well deserve more attention than they have usually received from foreigners, especially as it seems singular at first sight, and almost paradoxical, that a commonwealth founded by the Puritans, whom we are accustomed to regard as the enemies of polite literature and science, should now take so prominent a lead as the patrons of both; or that a sect which was so prone to bibliolatry that they took their pattern and model of civil government, and even their judicial code, from the Old Testament, who carried their theory of the union of Church and State so far as to refuse the civil franchise to all who were not in full communion with their Church, and who persecuted for a time some non-conformists, even to the death, should nevertheless have set an example to the world of religious toleration, and have been the first to establish schools for popular education open to the children of all denominations—Romanist, Protestant, and Jew.

If any one entertains a doubt that the peculiar character stamped upon the present generation of New Englanders, in relation to religious and political affairs, is derived directly and indisputably from their Puritan ancestors, let them refer to the history of Massachusetts. According to the calculation of Bancroft, the first Puritan settlers of New England are the parents of one-third of the whole white population of the United States. Within the first fifteen years (and there never was afterward any considerable increase from England) there came over 21,200 persons, or 4000 families. Their descendants, he says, are now (1840) not far from 4,000,000. Each family has multiplied on the average to 1000 souls, and they have carried to New York and Ohio, where they constitute half the population, the Puritan system of free schools, which they established from the beginning. When we recollect that the population of all England is computed to have scarcely exceeded five millions when the chief body of the Puritans first emigrated to the New World, we

may look upon the present descendants of the first colonists as constituting a nation hardly inferior in numbers to what England itself was only two centuries before our times. The development, therefore, of the present inhabitants from a small original stock has been so rapid, and the intermediate generations so few, that we must be quite prepared to discover in the founders of the colony of the seventeenth century, the germ of all the wonderful results which have since so rapidly unfolded themselves.

Nor is this difficult. In the first place, before the great civil war broke out in England, when the principal emigration took place to Massachusetts, the Puritans were by no means an illiterate or uncultivated sect. They reckoned in their ranks a considerable number of men of good station and family, who had received the best education which the schools and universities then afforded. Some of the most influential of the early New England divines, such as Cotton Mather, were good scholars, and have left writings which display much reading and an acquaintance with the Greek and Latin languages. Milton's "Paradise Lost" usually accompanied the Bible into the log-houses of the early settlers, and with the "Paradise Lost" the minor poems of the same author were commonly associated.

The Puritans who first went into exile, after enduring much oppression in their native country, were men who were ready to brave the wilderness rather than profess doctrines or conform to a ritual which they abhorred. They were a pure and conscientious body. They might be ignorant or fanatical, but they were at least sincere, and no hypocrites had as yet been tempted to join them for the sake of worldly promotion, as happened at a later period, when Puritanism in the mother country had become dominant in the state. Full of faith, and believing that their religious tenets must be strengthened by free investigation, they held that the study and interpretation of the Scriptures should not be the monopoly of a particular order of men, but that every layman was bound to search them for himself. Hence they were anxious to have all their children taught to read. So early as the year 1647, they instituted common schools, the law declaring "that all the brethren shall teach their children and apprentices

to read, and that every township of fifty householders shall appoint one to teach all the children." *

Very different was the state of things in the contemporary colony of Virginia, to which the Cavaliers and the members of the Established Church were thronging. Even fifteen or twenty years later, Sir William Berkeley, who was governor of Virginia for nearly forty years, and was one of the best of the colonial rulers, spoke thus, in the full sincerity of his heart, of his own province, in a letter written after the restoration of Charles II. : —“I thank God there are no free schools or printing, and I hope we shall not have them these hundred years. For learning has brought heresy and disobedience and sects into the world, and printing has divulged them, and libels against the best government. God keep us from both.” †

Sir William Berkeley was simply expressing here, in plain terms, the chief motives which still continue to defeat or retard the cause of popular education in some parts of the United States and in many countries of Europe, England not excepted—a dread of political change while the people remain in ignorance, and a fear of removing that ignorance, lest it should bring on changes of religious opinion. The New Englanders were from the beginning so republican in spirit, that they were not likely to share Governor Berkeley’s apprehensions of a growing dislike to “the best of governments,” as he termed the political maxims of the Stuarts ; and if, for a time, they cherished hopes of preserving uniformity of religious opinion, and even persecuted some who would not conform to their views, their intolerance was of short duration, and soon gave way to those enlightened views of civil and religious freedom which they had always professed, even when they failed to carry them into practice.

If we contrast the principles before alluded to of the leading men in Massachusetts with those of the more southern settlers, in the early part of the seventeenth century, we learn without surprise that at a time when there was not one bookseller’s shop in Virginia and no printing presses, there were several in Boston,

* Bancroft, vol. i. p. 458.

† Chalmers, cited by Graham, *Hist. of U. S.*, vol. i. p. 103.

with no less than five printing-offices, a fact which reflects the more credit on the Puritans, because at the same period (1724) there were no less than thirty-four counties in the mother country, Lancashire being one of the number, in which there was no printer.*

When the Pilgrim Fathers were about to sail in the *Mayflower* from Leyden, a solemn fast was held before they embarked, and their pastor, Robinson, gave them a farewell address, in which these memorable words are recorded :—

“I charge you, before God and his blessed angels, that you follow me no further than you have seen me follow the Lord Jesus Christ. The Lord has more truth yet to break forth out of his holy word. For my part, I can not sufficiently bewail the condition of the reformed churches, who are come to a period in religion, and will go at present no further than the instruments of their first reformation. The Lutherans can not be drawn to go beyond what Luther saw. Whatever part of His will our good God has imparted and revealed unto Calvin, they will die rather than embrace it. And the Calvinists, you see, stick fast where they were left by that great man of God, who yet saw not all things. This is a misery much to be lamented ; for, though they were burning and shining lights in their times, yet they penetrated not into the whole counsel of God : but, were they now living, they would be as willing to embrace further light as that which they first received. I beseech you to remember it ; it is an article of your church-covenant, that you will be ready to receive whatever truth shall be made known unto you from the written word of God. Remember that and every other article of your most sacred covenant.”

It may be said that the spirit of progress, the belief in the future discovery of new truths, and the expansion of Christianity, which breathes through every passage of this memorable discourse, did not characterize the New England Independents any more than the members of other sects. Like the rest, they had embodied their interpretations of Scripture in certain fixed and definite propositions, and were but little disposed to cherish the

* Macaulay, *History of England*, vol. i. p. 392, who cites Nichols.

doctrine of the gradual development of Christianity. The Romanists had stopped short at the council of Trent, when the decrees of a general council were canonized by the sanction of an infallible Pope. In like manner, almost every Protestant church has acted as if religion ceased to be progressive at the precise moment of time when their own articles of belief were drawn up, after much dispute and difference of opinion.

But the precepts inculcated by Pastor Robinson were delivered to a body of men whose form of ecclesiastical polity was very peculiar; who held that each congregation, each separate society of fellow-worshippers, constituted within themselves a perfect and independent church, whose duty it was to compose for itself and modify at pleasure its rules of scriptural interpretation. In conformity with these ideas, the common law of New England had ruled, that the majority of the pew-holders in each church should retain their property in a meeting-house, and any endowment belonging to it, whatever new opinions they might, in the course of time, choose to adopt. In other words, if, in the lapse of ages, they should deviate from the original standard of faith, they should not suffer the usual penalties of dissent, by being dispossessed of the edifice in which they were accustomed to worship, or of any endowments given or bequeathed for a school-house or the support of a pastor, but should continue to hold them; the minority who still held fast to the original tenets of the sect, having to seek a new place of worship, but being allowed to dispose of their pews, as of every other freehold, if purchasers could be found.

Every year in some parts of New England, where the population is on the increase, the manner in which some one of these new congregations starts into existence may be seen. A few individuals, twenty perhaps, are in the habit of meeting together on the Sabbath in a private dwelling, or in the school-house already built for the children of all denominations in the new village. One of the number offers a prayer, another reads a chapter in the Bible, another a printed sermon, and perhaps a fourth offers remarks, by way of exhortation, to his neighbors. As the population increases, they begin to think of forming them-

selves into a church, and settling a minister. But first they have to agree upon some creed or covenant which is to be the basis of their union. In drawing up this creed they are usually assisted by some neighboring minister, and it is then submitted for approbation to a meeting of all the church members, and is *thoroughly discussed* and altered till it suits the peculiar and prevailing shades of opinion of the assembly. When at length it is assented to, it is submitted to a council of neighboring ministers, who examine into its scriptural basis, and who, according as they approve or disapprove of it, give or withhold "the hand of fellowship."

The next step is to elect a pastor. After hearing several candidates preach, they invite one to remain with them; and, after he has been ordained by the neighboring ministers, agree on the salary to be insured to him, for the collection of which certain members become responsible. It rarely exceeds 700 dollars, and more usually amounts in rural districts to 500 dollars, or 100 guineas annually.

By the Congregationalists, a church is defined to be a company of pious persons, who voluntarily unite together for the worship of God. Each company being self-created, is entirely independent of every other, has the power to elect its own officers, and to admit or exclude members. Each professes to regard creeds and confessions of faith simply as convenient guides in the examination of candidates, not standards of religious truth. They may be the opinions of good and wise men, venerable by their antiquity, but of no binding authority, and are to be measured in each separate church by their conformity with Scripture. As to the union of different churches, it is purely voluntary, and has been compared to a congress of sovereign states, having certain general interests in common, but entirely independent of each other. There are no articles of union; but if any old or new society is thought to depart so widely from the other churches that they can no longer be recognized as Christians, the rest withhold or withdraw their fellowship.

Upon the whole, the separate congregational churches, both in Old and New England, in all above 3000 in number, have

held together more firmly for two centuries, and have deviated far less from the original standard of faith, than might have been expected; although in Massachusetts and some neighboring States, more than a hundred meeting-houses, some of them having endowments belonging to them, have in the course of the last forty years been quietly transferred, by the majority of the pew-holders, to what may be said to constitute new denominations. The change usually takes place when a new minister is inducted. This system of ecclesiastical polity is peculiarly repugnant to the ideas entertained by churchmen in general, whose efforts are almost invariably directed, whether in Protestant or Romanist communities, to inculcate a deep sense of the guilt of schism, and to visit that guilt as far as possible with pecuniary penalties and spiritual outlawry. The original contract is usually based on a tacit assumption that religion is not, like other branches of knowledge, progressive in its nature; and, therefore, instead of leaving the mind unfettered and free to embrace and profess new interpretations, as would be thought desirable where the *works* of God are the subjects of investigation, every precaution is taken to prevent doubt, fluctuation, and change. It is even deemed justifiable to exact early vows and pledges against the teaching of any new doctrines; and if the zealous inquirer should, in the course of years and much reading, catch glimpses of truths not embodied in his creed, nay, the very grounds of which could not be known to him when he entered the church, nor to the original framers of his articles of religion, no provision is made for enabling him to break silence, or openly to declare that he has modified his views. On the contrary, such a step must usually be attended with disgrace, and often with destitution.

Nor does the intensity of this feeling seem by any means to diminish in modern times with the multiplication of new sects. It is even exhibited as strongly in bodies which dissent from old establishments as in those establishments themselves. Wesley, for example, took the utmost care that every Methodist chapel should be so vested in the "General Conference," as to insure the forfeiture of the building to the trustees, if any particular congregation should deviate from his standard of faith, or even

should return to the Church of England, whose doctrines they had never renounced. But the most signal instance of a fixed determination to prevent any one congregation from changing its mind in regard to any dogma or rite, until all the others associated with it are ready to move on in the same direction, has been exemplified in our times by the Free Kirk of Scotland. More than a million of the population suddenly deserted the old establishment, and were compelled to abandon hundreds of ecclesiastical buildings, in which they had worshiped from their childhood. Some of these edifices remained useless for a time, locked up, and no service performed in them, because the minister and nearly all the parishioners had joined in the secession. It was necessary for the separatists to erect 700 or 800 new edifices and school-houses, on which they expended several hundred thousand pounds, having often no small difficulty to obtain new sites for churches, so that their ministers preached for a time, like the Covenanters of old, in the open air. It was under these circumstances, and at the moment of submitting to such sacrifices, that their new ecclesiastical organization was completed, providing that if any one of several hundred congregations should hereafter deviate, in ever so slight a degree, from any one of the numerous articles of faith drawn up nearly three centuries ago, under the sanction of John Knox, or from any one of the rules and forms of church government then enacted, they should be dispossessed of the newly erected building, and all funds thereunto belonging. Had any other contract been proposed, implying the possibility of any future change or improvement in doctrine or ceremony, not a farthing would have been contributed by these zealous Presbyterians; nor have they acted inconsistently, inasmuch as they are fully persuaded that they neither participate in an onward or backward movement, but are simply reverting to that pure and perfect standard of orthodoxy of the middle of the sixteenth century, from which others have so sinfully departed.

It is only in times comparatively modern, that the opinion has gained ground in Europe, and very recently in Scotland, that in the settlement of landed property there should be some limitation of the power of the dead over the living, and that a testator can

not be gifted with such foresight as to enable him to know beforehand in what manner, and subject to what conditions, his wealth may be best distributed among his descendants, several generations hence, for their own benefit or that of the community at large. Whether, in ecclesiastical matters, also, there should not be some means provided of breaking the entail without resorting to what is termed in Scotland "a disruption," so that deviations from theological formularies many centuries old, should not be visited with pecuniary losses or disgrace—whether it be expedient to allow the Romanist or Calvinist, the Swedenborgian or Socinian, and every other sectary to enforce, by the whole power of the wealth he may bequeath to posterity, the teaching of his own favorite dogmas for an indefinite time, and when a large part of the population on whom he originally bestowed his riches have altered their minds, are points on which a gradual change has been taking place in the opinions of not a few of the higher classes at least. Of this no one will doubt who remembers or will refer to the debates in both Houses of the British Parliament in 1844,* and the speeches of eminent statesmen of opposite politics when the Dissenters' Chapel Bill was discussed.

But whatever variety of views there may still be on this subject in Europe, it is now the settled opinion of many of the most thoughtful of the New Englanders, that the assertion of the independence of each separate congregation, was as great a step toward freedom of conscience as all that had been previously gained by Luther's Reformation; and it constitutes one of those characteristics of church government in New England, which, whether approved of or not, can not with propriety be lost sight of, when we endeavor to trace out the sources of the love of progress, which has taken so strong a hold of the public mind in New England, and which has so much facilitated their plan of national education. To show how widely the spirit of their peculiar ecclesiastical system has spread, I may state that even the Roman Catholics have, in different states, and in three or four cases (one of which is still pending, in 1848–9), made an appeal to the courts of law, and endeavored to avail themselves of the

* See the Debates on 7 & 8 Vict., ch. xlv. A. D. 1844.

principle of the Independents, so that the majority of a separate congregation should be entitled to resist the appointment by their bishop of a priest to whom they had strong objections. The courts seem hitherto to have determined that, as the building belonged to the majority of the pew-holders, they might deal with it as they pleased ; but they have declined to pronounce any opinion on points of ecclesiastical discipline, leaving the members of each sect free, in this respect, to obey the dictates of their own conscience.

But to exemplify the more regular working of the congregational polity within its own legitimate sphere, I will mention a recent case which came more home to my own scientific pursuits. A young man of superior talent, with whom I was acquainted, who was employed as a geologist in the state survey of Pennsylvania, was desirous of becoming a minister of the Presbyterian Church in that state ; but, when examined, previous to ordination, he was unable to give satisfactory answers to questions respecting the plenary inspiration of Scripture, because he considered such a tenet, when applied to the first book of Genesis, inconsistent with discoveries now universally admitted, respecting the high antiquity of the earth, and the existence of living beings on the globe long anterior to man. The rejected candidate, whose orthodoxy on all other points was fully admitted, was then invited by an Independent congregation in New England, to become their pastor ; and when he accepted the offer, the other associated churches were called upon to decide whether they would assist in ordaining one who claimed the right to teach freely his own views on the question at issue. The right of the congregation to elect him, whether the other churches approved of the doctrine or not, was conceded ; and a strong inclination is always evinced, by the affiliated societies, to come, if possible, to an amicable understanding. Accordingly, a discussion ensued, and is perhaps still going on, whether, consistently with a fair interpretation of Scripture, or with what is essential to the faith of a Christian, the doctrine of complete and immediate inspiration may or may not be left as an open question.

Some of my readers may perhaps exclaim that this incident

proves that the Congregationalists of New England are far behind many orthodox divines of the Church of England, or even the Church of Rome, as shown by Dr. Wiseman's lectures, in the liberality of their opinions on this head, and that the establishment of the true theory of astronomy satisfied the Protestant world, at least, that the Bible was never intended as a revelation of physical science. No doubt it is most true, that within the last forty years many distinguished writers and dignitaries of the English Church have expressed their belief very openly in regard to the earth's antiquity, and the leading truths established by geology. "The Records of Creation," published in 1818, by the present Archbishop of Canterbury (Dr. Sumner), the writings of the present Dean of Westminster (Dr. Buckland), those of the Dean of Llandaff (Dr. Conybeare), and of the Woodwardian Professor of Cambridge (The Rev. A. Sedgwick), and others, might be adduced in confirmation. All of these, indeed, have been cited by the first teachers of geology in America, especially in the "orthodox universities" of New England, as countenancing the adoption of their new theories; and I have often heard scientific men in America express their gratitude to the English Churchmen for the protection which their high authority afforded them against popular prejudices at a critical moment, when many of the State Legislatures were deliberating whether they should or should not appropriate large sums of the public money to the promotion of geological surveys. The point, however, under discussion in the Congregationalist Church, to which I have alluded, is in reality a different one, and of the utmost importance; for it is no less than to determine, not whether a minister may publish books or essays declaratory of his own individual views, respecting the bearing of physical science on certain portions of Scripture, but whether he may, without reproach or charge of indiscretion, freely and candidly expound to all whom he addresses, rich and poor, from the pulpit, those truths on which few well-informed men now any longer entertain a doubt. Until such permission be fairly granted, the initiated may, as we well know, go on for ages embracing one creed, while the multitude holds fast to another, and looks with suspicion and distrust on the phi-

losopher who unreservedly makes known the most legitimate deductions from facts. Such, in truth, is the present condition of things throughout Christendom, the millions being left in the same darkness respecting the antiquity of the globe, and the successive races of animals and plants which inhabited it before the creation of man, as they were in the middle ages; or, rather, each new generation being allowed to grow up with, or derive from Genesis, ideas directly hostile to the conclusions universally received by all who have studied the earth's autobiography. Not merely the multitude, but many of those who are called learned, still continue, while beholding with delight the external beauty of the rocks and mountains, to gaze on them as Virgil's hero admired his shield of divine workmanship, without dreaming of its historical import :—

“Dona parentis
Miratur, rerumque ignarus imagine gaudet.”

The extent to which, in Protestant countries, and where there is a free press, opinions universally entertained by the higher classes, may circulate among them in print and may yet remain a sealed book to the million as completely as if they were still in sacerdotal keeping, is such as no one antecedently to experience would have believed possible. The discoveries alluded to are by no means confined to the domain of physical science. I may cite as one remarkable example the detection of the spurious nature of the celebrated verse in the First Epistle of John, chap. v. verse 7, commonly called “the Three Heavenly Witnesses.” Luther, in the last edition which he published of the Bible, had expunged this passage as spurious; but, shortly after his death, it was restored by his followers, in deference to popular prepossessions and Trinitarian opinions. Erasmus omitted it in his editions of the New Testament in the years 1516 and 1519; and after it had been excluded by several other eminent critics, Sir Isaac Newton wrote his celebrated dissertation on the subject between the years 1690 and 1700, strengthening the arguments previously adduced against the genuineness of the verse. Finally, Porson published, in 1788 and 1790, his famous letters, by which the question was

forever set at rest. It was admitted that in all the Greek MSS. of the highest antiquity, the disputed passages were wanting, and Porson enumerated a long list of Greek and Latin authors, including the names of many fathers of the Church, who, in their controversies with Arians and Socinians, had not availed themselves of the text in question, although they had cited some of the verses which immediately precede and follow, which lend a comparatively feeble support to their argument.

All who took the lead against the genuineness of the passage, except Sir Isaac Newton, were Trinitarians; but doubtless felt with Porson, that "he does the best service to truth who hinders it from being supported by falsehood." Throughout the controversy, many eminent divines of the Anglican church have distinguished themselves by their scholarship and candor, and it is well known by those who have of late years frequented the literary circles of Rome, that the learned Cardinal Mai was prevented, in 1838, from publishing his edition of the Codex Vaticanus, because he could not obtain leave from the late Pope (Gregory XVI.) to omit the interpolated passages, and had satisfied himself that they were wanting in all the most ancient MSS. at Rome and Paris. The Pontiff refused, because he was bound by the decrees of the Council of Trent, and of a Church pretending to infallibility, which had solemnly sanctioned the Vulgate, and the Cardinal had too much good faith to give the authority of his name to what he regarded as a forgery. In Oxford, in 1819, the verse was not admitted, by the examiners in Divinity, as Scripture warranty for the doctrine of the Trinity; yet, not only is it retained in the English Prayer-Book, in the epistle selected for the first Sunday after Easter, but the Protestant Episcopal Church in America, when finally revising their version of the English Liturgy in 1801, several years after Porson's letters had been published, did not omit the passage, although they had the pruning knife in their hand, and were lopping off several entire services, such as the Commination, Gunpowder Treason, King Charles the Martyr, the Restoration of Charles II., and last, not least, the Athanasian Creed. What is still more remarkable, Protestants of every denomination have

gone on year after year distributing hundreds of thousands of Bibles, not only without striking out this repudiated verse, but without even affixing to it any mark or annotation to show the multitude that it is given up by every one who has the least pretension to scholarship and candor.

“Let Truth, stern arbitress of all,
Interpret that original,
And for presumptuous wrongs atone ;—
Authentic words be given, or none !”

It is from no want of entire sympathy with the sentiment expressed in these lines of Wordsworth, and written by him on a blank leaf of Macpherson's *Ossian*, that literary or scientific men, whether Protestant or Catholic, European or American, clergy or laity, abstain in general from communicating the results of their scientific or biblical researches to the million, still less from any apprehension that the essential truths of Christianity would suffer the slightest injury, were the new views to be universally known. They hesitate, partly from false notions of expediency, and partly through fear of the prejudices of the vulgar. They dare not speak out, for the same reason that the civil and ecclesiastical rulers of England halted for one hundred and seventy years before they had courage to adopt the reform in the Julian calendar, which Gregory XIII., in accordance with astronomical observations, had effected in 1582.

Hogarth, in his picture of the Election Feast, has introduced a banner carried by one of the crowd, on which was inscribed the motto, “Give us back our eleven days,” for he remembered when the angry mob, irritated by the innovation of the new style, went screaming these words through the streets of London.

In like manner, the acknowledged antiquity of Egyptian civilization, or of the solid framework of the globe, with its monuments of many extinct races of living beings, might, if suddenly disclosed to an ignorant people, raise as angry a demand to give them back their old chronology. Hence arises a habit of concealing from the unlettered public discoveries which might, it is thought, perplex them, and unsettle their old opinions. This method of dealing with the most sacred of subjects, may thus be

illustrated :—A few tares have grown up among the wheat ; you must not pull them up, or you will loosen the soil and expose the roots of the good grain, and then all may wither : moreover, you must go on sowing the seeds of the same tares in the mind of the rising generation, for you can not open the eyes of the children without undeceiving and alarming their parents. Now the perpetuation of error among the many, is only one part of the mischief of this want of good faith, for it is also an abandonment by the few of the high ground on which their religion ought to stand, namely, its truth. It accustoms the teacher to regard his religion in its relation to the millions as a mere piece of machinery, like a police, for preserving order, or enabling one class of men to govern another.

If such a state of things be unsound and unsatisfactory, it is not so much the clergy who are to blame as the laity ; for laymen have more freedom of action, and can with less sacrifice of personal interests take the initiative in a reform. The cure of the evil is obvious ; it consists in giving such instruction to the people at large as would make concealment impossible. Whatever is known and intelligible to ordinary capacities in science, especially if contrary to the first and natural impressions derivable from the literal meaning, or ordinary acceptation of the text of Scripture, whether in astronomy, geology, or any other department of knowledge, should be freely communicated to all. Lay teachers, not professionally devoted and pledged to propagate the opinions of particular sects, will do this much more freely than ecclesiastics, and, as a matter of course, in proportion as the standard of public instruction is raised ; and no order of men would be such gainers by the measure as the clergy, especially the most able and upright among them. Every normal school, every advance made in the social and intellectual position of the lay teachers, tends to emancipate, not the masses alone, but still more effectually their spiritual guides, and would increase their usefulness in a tenfold degree. That a clergy may be well informed for the age they live in, and may contain among them many learned and good men, while the people remain in darkness, we know from history ; for the spiritual instructors may

wish to keep the multitude in ignorance, with a view of maintaining their own power. But no educated people will ever tolerate an idle, illiterate, or stationary priesthood. That this is impossible, the experience of the last quarter of a century in New England has fully proved. In confirmation of this truth, I may appeal to the progress made by the ministers of the Methodist and Baptist churches of late years. Their missionaries found the Congregationalists slumbering in all the security of an old establishment, and soon made numerous converts, besides recruiting their ranks largely from newly arrived emigrants. They were able to send more preachers into the vineyard, because they required at first scarcely any preparation or other qualification than zeal. But no sooner had the children of the first converts been taught in the free schools under an improved system, than the clergy of these very denominations, who had for a time gloried in their ignorance and spoken with contempt of all human knowledge, found it necessary to study for some years in theological seminaries, and attend courses of church history, the Greek, Latin, Hebrew, and German languages, the modern writings of German and other biblical scholars, and every branch of divinity. The Baptist college at Newton has greatly distinguished itself among others, and that of the Methodists at Middletown in Connecticut; while the Independents have their theological college at Andover in Massachusetts, which has acquired much celebrity, and drawn to it pupils from great distances, and of many different denominations.

The large collections of books on divinity which are now seen in the libraries of New England clergy, were almost unknown a quarter of a century ago.

The average pay, also, of the clergy in the rural districts of New England has increased. About the middle of the last century, it was not more than 200 dollars annually, so that they were literally "passing rich with forty pounds a year;" whereas now they usually receive 500 at least, and some in the cities 2000 or 3000 dollars. Nor can there be a doubt that, in proportion as the lay teachers are more liberally remunerated, the scale of income required to command the services of men of

first-rate talent in the clerical profession, must and will be raised.

Already there are many indications in Massachusetts that a demand for higher qualifications in men educated for the pulpit is springing up. It is no bad augury to hear a minister exhort his younger brethren at their ordination not to stand in awe of their congregations, but to remember they have before them sinful men who are to be warned, not critics who are to be propitiated. "Formerly," said Channing, "Felix trembled before Paul ; it is now the successor of Paul who trembles :"—a saying which, coming as it did from a powerful and successful preacher, implies that the people are awaking, not that they are growing indifferent about religious matters, but that the day of soporific discourses, full of empty declamation or unmeaning common-places, is drawing to a close.

It will be asked, however, even by some who are favorable to popular education, whether the masses can have leisure to profit in after life by such a style of teaching as the government of Massachusetts is now ambitious of affording to the youth of the country, between the ages of four and fourteen. To this I may answer, that in nations less prosperous and progressive it is ascertained that men may provide for all their bodily wants, may feed and clothe themselves, and yet give up one-seventh part of their time, or every Sabbath, to their religious duties. That their religion should consist not merely in the cultivation of a devotional spirit toward their Maker, but also in acquiring pure and lofty conceptions of his attributes—a knowledge of the power and wisdom displayed in his works—an acquaintance with his moral laws—a just sense of their own responsibility, and an exercise of their understandings in appreciating the evidences of their faith, few of my readers will deny. To insure the accomplishment of these objects, a preparatory education in good schools is indispensable. It is not enough to build churches and cathedrals, to endow universities or theological colleges, or to devote a large portion of the national revenues to enable a body of spiritual instructors to discharge, among other ecclesiastical duties, that of preaching good sermons from the pulpit. Their seed may fall

on a soil naturally fertile, but will perish if there has been no previous culture of the ground. At the end of seventy years men of good natural abilities, who have been attentive to their religious observances, have given up ten entire years of their life, a period thrice as long as is required for an academical course of study, and at the close of such a career may, as we know, be ignorant, sensual, and superstitious, and have little love or taste for things intellectual or spiritual.

But granting that time and leisure may be found, it will still be asked whether, if men of the humblest condition be taught to enjoy the poems of Milton and Gray, the romances of Scott, or lectures on literature; astronomy, and botany, or if they read a daily newspaper and often indulge in the stirring excitement of party politics, they will be contented with their situation in life, and submit to hard labor. All apprehension of such consequences is rapidly disappearing in the more advanced states of the American Union. It is acknowledged by the rich that, where the free schools have been most improved, the people are least addicted to intemperance, are more provident, have more respect for property and the laws, are more conservative, and less led away by socialist or other revolutionary doctrines. So far from indolence being the characteristic of the laboring classes, where they are best informed, the New Englanders are rather too much given to overwork both body and brain. They make better pioneers, when roughing it in a log-house in the backwoods, than the uneducated Highlander or Irishman; and the factory girls of Lowell, who publish their "Offering," containing their own original poems and essays, work twelve hours a day, and have not yet petitioned for a ten-hour bill.

In speculating on the probability of the other states in the north, south, and west, some of them differing greatly in the degree of their social advancement, and many of them retarded by negro slavery, adopting readily the example set them by the New Englanders, and establishing free and normal schools, I find that American enthusiasts build their hopes chiefly on that powerful stimulus which they say is offered by their institutions for popular education—a stimulus such as was never experienced

before in any country in the world. This consists not so much in the absence of pauperism, or in the individual liberty enjoyed by every one in civil and religious rights, but in the absence of the influence of family and fortune—the fair field of competition, freely open to all who aspire, however humble, to rise one day to high employments, especially to official or professional posts, whether lay or ecclesiastical, civil or military, requiring early cultivation. Few will realize their ambitious longings; but every parent feels it a duty to provide that his child should not be shut out from all chance of winning some one of the numerous prizes, which are awarded solely on the ground of personal qualifications, not always to the most worthy, but at least without any regard to birth or hereditary wealth. It seems difficult to foresee the limit of taxation which a population, usually very intolerant of direct taxes, will not impose on themselves to secure an object in which they have all so great a stake, nor does any serious obstacle or influence seem likely to oppose their will. There is in no state, for example, any dominant ecclesiastical body sufficiently powerful to thwart the maxims of those statesmen who maintain that, as the people are determined to govern themselves, they must be carefully taught and fitted for self-government, and receive secular instruction in common schools open to all. The Roman Catholic priests, it is true, in the state of New York, where there are now 11,000 schools in a population of two millions and a half, have made some vigorous efforts to get the exclusive management of a portion of the school funds into their own hands, and one, at least, of the Protestant sects has openly avowed its sympathy in the movement. But they have failed from the extreme difficulty of organizing a combined effort, where the leaders of a great variety of rival denominations are jealous of one another; and, fortunately, the clergy are becoming more and more convinced that, where the education of the million has been carried farthest, the people are most regular in their attendance on public worship, most zealous in the defense of their theological opinions, and most liberal in contributing funds for the support of their pastors and the building of churches.

CHAPTER XIII.

Leaving Boston for the South.—Railway Stove.—Fall of Snow.—New Haven, and Visit to Professor Silliman.—New York.—Improvements in the City.—Croton Waterworks.—Fountains.—Recent Conflagration.—New Churches.—Trinity Church.—News from Europe of Converts to Rome.—Reaction against Tractarians.—Electric Telegraph, its Progress in America.—Morse and Wheatstone.—11,000 Schools in New York for Secular Instruction.—Absence of Smoke.—Irish Voters.—Nativism.

Dec. 3. 1845.—HAVING resolved to devote the next six months of my stay in America to a geological exploration of those parts of the country which I had not yet visited, I left Boston just as the cold weather was setting in, to spend the winter in the south. The thermometer had fallen to 23° F., and on our way to the cars we saw skaters on the ice in the common. Soon after we started, heavy snow began to fall, but in spite of the storm we were carried to Springfield, 100 miles, in five hours. We passed a luggage train with twenty-two loaded cars, rolling past us in the opposite direction, on 100 wheels, including those of the engine and tender. In the English railways, the passengers often suffer much from cold in winter. Here, the stove in the center of the long omnibus is a great luxury, and I saw one traveler after another leave his seat, walk up to it and warm his feet on the fender. As I was standing there, a gentleman gave me the President's speech to read, which, by means of a railway express, had, for the first time, been brought from Washington to Boston, 470 miles, in one day. It was read with interest, as all were speculating on the probability of a war with England about Oregon. While I was indulging my thoughts on the rapid communication of intelligence by newspapers and the speed and safety of railway traveling, a fellow-passenger interrupted my pleasing reveries by telling me I was standing too near the iron stove, which had scorched my clothes and burnt a hole in my great coat, and immediately afterward I learnt at Springfield, that

the cars on the line between that town and Albany, where there is only one track, had run against a luggage train near Chester, and many passengers were injured. Some say that two were killed. According to others, one of the trains was five minutes before its time; but our informant took my thoughts back to England, and English narratives of the like catastrophes by saying, "It has been ascertained that no one was to blame." We had no reason to boast of our speed the next day, for we were twelve hours in going sixty-two miles to New Haven. The delay was caused by ice on the rail, and by our having to wait to let the New York train pass us, there being only one line of rail. A storm in the Sound had occasioned the New York cars to be five hours behind their time. We saw many sleighs dashing past and crossing our road. It was late before we reached the hospitable house of Professor Silliman, who with his son gave me many valuable instructions for my southern tour. Their letters of introduction, however, though most useful, were a small part of the service they did me both in this tour and during my former visit to America. Every where, even in the states most remote from New England, I met with men who, having been the pupils of Professor Silliman, and having listened to his lectures when at college, had invariably imbibed a love for natural history and physical science.

In the morning, when we embarked in the steamer for New York, I was amused at the different aspect of the New Haven scenery from that which I remembered in the autumn of 1841. The East Rock was now covered with snow, all but the bold precipice of columnar basalt. The trees, several of which, especially the willows, still retained many of their leaves, were bent down beneath a weight of ice. I never saw so brilliant a spectacle of the kind, for every bough of the large drooping elms and the smallest twigs of every tree and shrub were hung with transparent icicles, which, in the bright sunshine, reflected the prismatic colors like the cut-glass drops of a chandelier. As we sailed out of the harbor, which was crowded with vessels, we saw all the ropes of their riggings similarly adorned with crystals of ice. A stormy voyage of nine hours carried us through Long Island

Sound, a distance of ninety miles, to New York. It is only three years since we were last in this city, yet in this short interval we see improvements equaling in importance the increase of the population, which now amounts in round numbers to 440,000; New York containing 361,000, and Brooklyn, which is connected with it by a ferry, together with Williamsburg 79,000. Among other novelties since 1841, we observe with pleasure the new fountains in the midst of the city supplied from the Croton waterworks, finer than any which I remember to have seen in the center of a city since I was last in Rome. Two of them are now, in spite of an intense frost, throwing up columns of water more than thirty feet high, one opposite the City Hall, and another in Hudson Square; but I am told that when we return in the summer we shall see many others in action. A work more akin in magnificence to the ancient and modern Roman aqueducts has not been achieved in our times; the water having been brought from the Croton river, a distance of about forty miles, at the expense of about three millions sterling. The health of the city is said to have already gained by greater cleanliness and more wholesome water for drinking; and I hear from an eminent physician that statistical tables show that cases of infantine cholera and some other complaints have sensibly lessened. The water can be carried to the attics of every house, and many are introducing baths and indulging in ornamental fountains in private gardens. The rate of insurance for fire has been lowered; and I could not help reflecting as I looked at the moving water, at a season when every pond is covered with ice, how much more security the city must now enjoy than during the great conflagration in the winter of 1835, when there was such a want of water to supply the engines. Only five months ago (July 19th, 1845), another destructive fire broke out near the battery, and when it was nearly extinguished by the aid of the Croton water, a tremendous explosion of saltpeter killed many of the firemen, and scattered the burning materials to great distances, igniting houses in every direction. A belief that more gunpowder still remained unexploded checked for a time the approach of the firemen, so that a large area was laid waste, and even now some of the ruins are

smoking, there being a smoldering heat in cellars filled with "dry goods." When the citizens of London rejected the splendid plan which Sir Christopher Wren proposed for its restoration, he declared that they had not deserved a fire, but the New Yorkers seem to have taken full advantage of the late catastrophe. As it was the business part of the city which the flames laid in ruins, we could not expect much display of ornamental architecture; but already, before the ashes have done smoking, we see entire streets of substantial houses which have risen to their full height, and the ground has been raised five feet higher than formerly above the river, so as to secure it from inundations, which has so enhanced its value, that many of the sites alone have sold for prices equal to the value of the buildings which once covered them. Among the new edifices, we were shown some which are fire-proof. Unfortunately, many a fine tree has been burned, and they are still standing without their bark, but the weeping willows bordering the river on the Battery have escaped unscathed.

Among the new features of the city we see several fine churches, some built from their foundations, others finished since 1841. The wooden spires of several are elegant, and so solid, as to have all the outward effect of stone. The two most conspicuous of the new edifices are Episcopalian, Trinity and Grace Church. The cost of the former has been chiefly defrayed by funds derived from the rent of houses in New York, bequeathed long since to the Episcopal Church. The expense is said to have equaled that of erecting any four other churches in the city. It is entirely of stone, a fine-grained sandstone of an agreeable light-brown tint. The top of the steeple is 289 feet from the ground. The effect of the Gothic architecture is very fine, and the Episcopalians may now boast that of all the ecclesiastical edifices of this continent, they have erected the most beautiful. Its position is admirably chosen, as it forms a prominent feature in Broadway, the principal street, and in another direction looks down Wall-street, the great center of city business. It is therefore seen from great distances in this atmosphere, so beautifully clear even at this season, when every stove is lighted, and when the ther-

mometer has fallen twenty degrees below the freezing point. Where there is so much bright sunshine and no smoke, an architect may well be inspired with ambition, conscious that the effect of every pillar and other ornament will be fully brought out with their true lights and shades. The style of the exterior of Trinity Church reminds us of some of our old Gothic churches in Lincolnshire and Northamptonshire. The interior is in equally good taste, the middle aisle sixty-five feet high, but the clustered columns will not have so stately an appearance, nor display their true proportions when the wooden pews have been introduced round their base. An attempt was made to dispense with these; but the measure could not be carried; in fact, much as we may admire the architectural beauty of such a cathedral, one can not but feel that such edifices were planned by the genius of other ages, and adapted to a different form of worship. When the forty-five windows of painted glass are finished, and the white-robed choristers are singing the Cathedral service, to be performed here daily, and when the noble organ peals forth its swelling notes to the arched roof, the whole service will remind us of the days of Romanism, rather than seem suitable to the wants of a Protestant congregation. It is not the form of building best fitted for instructing a large audience. To make the whole in keeping, we ought to throw down the pews, and let processions of priests in their robes of crimson, embroidered with gold, preceded by boys swinging censers, and followed by a crowd of admiring devotees, sweep through the spacious nave.

That the whole pomp and splendor of the ancient ceremonial will gradually be restored, with no small portion of its kindred dogmas, is a speculation in which some are said to be actually indulging their thoughts, and is by no means so visionary an idea as half a century ago it might have been thought. In the diocese of New York, the party which has adopted the views commonly called Puseyite, appears to have gone greater lengths than in any part of England. The newspapers published in various parts of the Union bear testimony to a wide extension of the like movement. We read, for example, a statement of a bishop who has ordered the revolving reading-desk of a curate to

be nailed to the wall, that he might be unable to turn with it toward the altar. The offending clergyman has resigned for the sake of peace, and part of his congregation sympathizing in his views have raised for him a sum of 6000 dollars. In another paper I see a letter of remonstrance from a bishop to an Episcopal clergyman, for attending vespers in a Romanist church, and for crossing himself with holy water as he entered. The epistle finishes with an inquiry if it be true that he had purchased several copies of the Ursuline Manual for young persons. The clergyman, in reply, complains of this petty and annoying inquisition into his private affairs, openly avows that he is earnestly examining into the history, character, claims, doctrines, and usages of the Church of Rome, and desirous of becoming practically acquainted with their forms of worship—that when present for this purpose he had thought it right to conform to the usage of the congregation, &c.

It would be easy to multiply anecdotes, and advert to controversial pamphlets, with which the press is teeming, in proof of the lively interest now taken in similar ecclesiastical questions, so that the reader may conceive the sensation just created here by a piece of intelligence which reached New York the very day of our arrival, and is now going the round of the newspapers, namely, the conversion to the Romish Church of the Rev. Mr. Newman, of Oxford. Some of his greatest admirers are put to confusion; others are rejoicing in the hope that the event may prove a warning to many who have departed from the spirit of the Reformation; and a third party, who gave no credit for sincerity to the leaders of a movement which they regarded as retrograde, and who still suspect that they who have joined in it here are actuated by worldly motives, are confessing that they did injustice to the great Oxford tractarian. One of them remarked to me, “We are often told from the pulpit here that we live in an age of skepticism, and that it is the tendency of our times to believe too little rather than too much; and yet Protestants of superior talent are now ready to make these great sacrifices for the sake of returning to the faith of Rome!” I might have replied, that reaction seems to be almost as much a princi-

ple of the moral as of the material world, and that we know, from the posthumous writings of one who had lived on intimate terms with the originators of the Tractarian movement in Oxford, that a recoil from doubts derived from the study of the German rationalists, led directly to their departure in an opposite direction. "They flung themselves," says Blanco White, writing in 1837, "on a phantom which they called Church. Their plan was to stop all inquiry," and "to restore popery, excluding the pope."* Meanwhile, the attempt to revive the credulity of the middle ages, and to resuscitate a belief in all the miracles of mediæval saints, has produced, as might naturally have been expected, another reaction, giving strength to a party called the anti-supernaturalists, who entirely reject all the historical evidence in favor of the Scripture miracles. Their leader in New England, Mr. Theodore Parker, is the author of a work of great erudition, originality, and earnestness (lately reprinted in England), in which, while retaining a belief in the Divine origin of Christianity, and the binding nature of its moral code, he abandons the greater part of the evidences on which its truth has hitherto been considered to repose. I heard this author, during my late stay in Boston, preach to a congregation respectable for its numbers and station.

Next to the new churches and fountains, the most striking change observable in the streets of New York since 1841, is the introduction of the electric telegraph, the posts of which, about 30 feet high and 100 yards apart, traverse Broadway, and are certainly not ornamental. Occasionally, where the trees interfere, the wires are made to cross the street diagonally. The successful exertions made to render this mode of communication popular, and so to cheapen it as to bring the advantages of it within the reach of the largest possible number of merchants, newspaper editors, and private individuals, is characteristic of the country. There is a general desire evinced of overcoming space, which seems to inspire all their exertions for extending and improving railways, lines of steam navigation, and these telegraphs. Agriculturists and mercantile men in remote places, are eager to know

* *Life of J. Blanco White*, vol. ii. p. 355, and vol. iii. p. 106.

every where, on the very day of the arrival of an Atlantic mail steamer, the prices of grain, cotton, and other articles in the European markets, so that they may speculate on equal terms with the citizens of Boston and New York. The politician, who is ambitious, not only of retaining all the states of the Union in one powerful confederation, but of comprising the whole continent under one empire, hails the new invention with delight, and foresees at once its important consequences. Mr. Winthrop well knew the temper of the people whom he addressed, when he congratulated a large meeting, that they might now send intelligence from one end of the Union to the other with the rapidity of thought, and that they had realized the promise of the King of the Fairies, that he would "put a girdle round about the earth in forty minutes." Already many paragraphs in the newspapers are headed, "Received by lightning, printed by steam," and all seem heartily to welcome the discovery as an instrument of progress. When promoting such works, they may exclaim, without boastfulness—

"These are imperial arts, and worthy kings."

After my return from America, I learned that the length of line completed in 1846, amounted to above 1600 miles, and in 1848 there were more than 5000 miles of wire laid down. In that year one of my English friends sent a message by telegraph to Liverpool, in September, which reached Boston by mail steamer, *viâ* Halifax, in twelve days, and was sent on immediately by electric telegraph to New Orleans, in one day, the answer returning to Boston the day after. Three days were then lost in waiting for the steam-packet, which conveyed the message back to England in twelve days; so that the reply reached London on the twenty-ninth day from the sending of the question, the whole distance being more than 10,000 miles, which had been traversed at an average rate exceeding 350 miles a day.

It is satisfactory to learn that the telegraph, although so often passing through a wild country, in some places anticipating even the railway, seems never yet to have been injured by the lovers of mischief. The wires have also been often struck by light-

ning, so frequent and vivid in this climate, without serious derangement of the delicate machinery. The telegraph generally in use is the patent of Mr. Morse, whose invention combines the power of printing a message simultaneously with its transmission. As the magnetic force becomes extremely feeble when conducted through a great length of wire, Morse employs it simply to make a needle vibrate, and so open and close the galvanic circuit placed in each office, where a local battery is set in motion, which works the printing machine. The long wires, therefore, may be compared to slender trains of gunpowder, which are made to fire a distant cannon or mine. It is not the battery in Philadelphia which works the instrument in Washington, but a battery in the Washington office. This contrivance is obviously nothing more than a new adaptation of the method specified by Mr. Wheatstone, in his patent of June, 1837, for ringing an alarum bell in each station by means of a local battery, of which I saw him exhibit experiments in 1837.

In September of the same year Mr. Morse invented an ingenious mode of printing messages, by causing an endless scroll of paper to roll off one cylinder on to another by means of clock-work, the paper being made to pass under a steel pen, which is moved by electro-magnetism.

An agent of Mr. Morse explained to me the manner in which the steel pen was made to indent the paper, which is not pierced, but appears as if it had been pressed on by a blunted point, the under surface being raised as in books printed for the blind. If the contact of the pen be continued instead of making a dot, it produces a short or a long line, according to the time of contact. The following is a specimen :—

$\overline{T}$ $\overline{h}$ $\overline{e}$ $\overline{E}$ $\overline{l}$ $\overline{e}$ $\overline{c}$ $\overline{t}$ $\overline{r}$ $\overline{o}$ $\overline{M}$ $\overline{a}$ $\overline{g}$ $\overline{n}$ $\overline{e}$ $\overline{t}$ $\overline{i}$ $\overline{c}$
 $\overline{T}$ $\overline{e}$ $\overline{l}$ $\overline{e}$ $\overline{g}$ $\overline{r}$ $\overline{a}$ $\overline{p}$ $\overline{h}$.

In the latest improvements of the telegraph in England, the magnetic force has been so multiplied by means of several thousand coils of wire, that they can send it direct, so as to move the

needle at great distances without the aid of local batteries. The use, however, of this instrument has been comparatively small in Great Britain, the cost of messages being four times as great as in the United States.

The population of the State of New York amounts, in the present year (1845) to 2,604,495 souls. Of this number as we learn by the report of the government inspector of schools, no less than 807,200 children, forming almost one-third of the inhabitants, have received the benefit of instruction either for the whole or part of the year. Of these, 31,240 attended private schools, and 742,433 the common or public schools of the state. We are also informed in the same official document, that the number of public schools is now 11,003. The whole amount of money received by the school trustees during the year for teachers' wages, and district libraries, was 1,191,697 dollars, equal to about 250,000*l*. This sum has been raised chiefly by rates, and about one-third of it from the revenue of the school fund, which produces a yearly income of 375,387 dollars. The teachers in the common schools, both male and female, are boarded at the public expense, and, in addition to their board, receive the following salaries :—Male teachers, during the winter term, 14 dollars, 16 cents; and during the summer term, 15 dollars, 77 cents per month, equal to about 50*l*. a year. Female teachers, 7 dollars, 37 cents in the winter term, and 6 dollars, 2 cents in the summer term. In some counties, however, the average is stated to be as high as 20, or even 26 dollars per month for the male teachers, and from 9 to 11 for the female. There are also district libraries in connection with most of the schools.

All these 11,000 schools have been organized on what has been styled in England, even by respectable members in the House of Commons, the infidel or godless plan, which generally means nothing more than that they are not under the management of the clergy. The Roman Catholic bishops and priests command a vast number of votes at the elections in New York, yet they failed, in 1842, to get into their exclusive control that part of the public school money which might fairly be considered

as applicable to the teaching of children of their own denomination. Their efforts, however, though fortunately defeated, were attended by some beneficial results. It is obviously the duty of every government which establishes a national system of secular education, to see that no books are used in the schools, containing sectarian views, or in which the peculiar opinions of any sect are treated with marked contempt. The Catholics complained that some of the works put into the hands of children, especially those relating to English history, were written with a strong Protestant bias, and that, while the superstitions of popery and the bigotry of Bloody Mary were pointedly dwelt upon, the persecutions endured by Romanists at the hands of Protestant rulers were overlooked, or slightly glanced at. The expunging of such passages, both in the State of New York and in New England, must have a wholesome tendency to lessen sectarian bitterness, which, if imbibed at an early age, is so difficult to eradicate; and children thus educated will grow up less prejudiced, and more truly Christian in spirit, than if the Romish or any other clergy had been permitted to obtain the sole and separate training of their minds.

I have often mentioned the absence of smoke as a striking and enviable peculiarity of the Atlantic cities. For my own part, I never found the heat of a well-managed stove oppressive, when vessels of water were placed over it for moistening the air by free evaporation; and the anthracite coal burns brightly in open grates. Even in a moral point of view, I regard freedom from smoke as a positive national gain, for it causes the richer and more educated inhabitants to reside in cities by the side of their poorer neighbors during a larger part of the year, which they would not do if the air and the houses were as much soiled by smoke and soot as Manchester, Birmingham, Leeds, or Sheffield. Here the dress and furniture last longer and look less dingy, flowers and shrubs can be cultivated in town gardens, and all who can afford to move are not driven into the country or some distant suburb. The formation of libraries and scientific and literary institutions, museums, and lectures, and the daily intercourse between the different orders of society—in a word, all

that can advance and refine the mind and taste of a great population, are facilitated by this contact of the rich and poor. In addition, therefore, to the importance given to the middle and lower classes by the political institutions of America, I can not but think it was a fortunate geological arrangement for the civilization of the cities first founded on this continent, that the anthracitic coal-fields were all placed on the eastern side of the Alleghany mountains, and all the bituminous coal-fields on their western side.

One day, when we were dining at the great table of the Carlton Hotel, one of the largest and most fashionable establishments of the kind in New York, we were informed by an American friend, that a young man and woman sitting opposite to us were well known to him as work-people from a factory near Boston. They scarcely spoke a word, but were conforming carefully to the conventional manners of those around them.

Before we left New York, we witnessed an unforeseen effect of the abundance of waste water recently poured into the city through the new Croton aqueduct. In the lower streets near the river the water in the open gutters had frozen in the course of the night, and, next morning, the usual channels being blocked up with ice, a stream poured down the middle of the street, and was in its turn frozen there, so that when I returned one night from a party, I wished I had been provided with skates, so continuous was the sheet of ice. Then came a thaw, and the water of the melted ice poured into the lower stories of many houses. The authorities are taking active measures to provide in future against the recurrence of this evil.

I suggested to one of my friends here that they had omitted, among their numerous improvements, to exclude the pigs from the streets. "It is not possible," said he, "for they all have votes; I mean their Irish owners have, and they turn the scale in the elections for mayor and other city officers. If we must have a war," he added, "about Oregon, it will at least be attended with one blessing—the stopping of this incessant influx of hordes of ignorant adventurers, who pour in and bear down our native population. Whether they call themselves 'the true

sons of Erin,' or the 'noble sons of Germany,' they are the dupes and tools of our demagogues." He then told me that in the last presidential election he had been an inspector, and had rejected many fraudulent votes of newly arrived emigrants, brought to the poll without letters of naturalization, and he had no doubt that some other inspectors had been less scrupulous when the voters were of their own political party. "But for the foreign vote," he affirmed, "Clay would have been elected." "Have you then joined the native American party?" "No; because, by separating from the Whigs, they have weakened the good cause, and nativism being chiefly anti-Irish, too often degenerates into religious bigotry, or into a mere anti-popery faction."

CHAPTER XIV.

New York to Philadelphia.—Scenery in New Jersey.—War about Oregon.—Protectionist Theories.—Income Tax and Repudiation.—Recriminations against British Aggrandizement.—Irish Quarter and fraudulent Votes.—Washington.—Congress and Annexation of Texas.—General Cass for War.—Winthrop for Arbitration.—Inflated Eloquence.—Supreme Court.—Slavery in District of Columbia.—Museum, Collection of Corals.—Sculpture from Palenque.—Conversations with Mr. Fox.—A Residence at Washington not favorable to a just Estimate of the United States.—False Position of Foreign Diplomats.

Dec. 9, 1845.—LEFT New York for Philadelphia by railway. When crossing the ferry to New Jersey, saw Long Island and Staten Island covered with snow. Between New York and Newark, New Jersey, there is a deep cutting through a basaltic or greenstone rock, a continuation of the mass which forms the columnar precipices, called the Palisades, on the Hudson river, above New York. From the jagged face of the cliffs in this cutting, were hanging some of the largest icicles I ever beheld, reminding me of huge stalactites pendent from the roofs of limestone caverns in Europe.

In New Jersey we passed over a gently undulating surface of country, formed of red marl and sandstone, resembling in appearance, and of about the same geological age, as the new red sandstone (trias) of England. The soil in the fields is of a similar red color, and all signs of recent clearings, such as the stumps of trees, have nearly disappeared. The copses, formed of a second growth of wood, and the style of the fences round the fields, gave an English aspect to the country. We went by Newark, Elizabethtown, Princeton, Trenton, Bordentown, and Burlington. In some of these places, as at Elizabethtown, houses and churches have grown up round the railway; and we passed through the middle of Burlington, a great source of convenience to the natives, and of amusement to the passengers, but implying a slow rate of traveling. Hereafter, to enable express trains to go at full speed from north to south, there must be branch lines outside the towns.

As we passed Burlington, a fellow passenger told us that in an Episcopalian college established there, called St. Mary's Hall, were a hundred young girls, whom he called "the holy innocents," assembled from every part of the Union. Eighteen of them had, in September last, taken their degrees in arts, receiving, from the hands of the Bishop of New Jersey, diplomas, headed by an engraving of the Holy Virgin and Child, and issued "in the name of the Father, Son, and Holy Ghost." The session had ended with the ceremony of laying and consecrating the corner-stone of "the chapel of the Holy Innocents for the use of the scholars of St. Mary's Hall."

Whether we took up a newspaper, or listened to conversation in the cars, we found that the Oregon question, and a rupture with England, were the all-engrossing topic of political speculation. The democratic party are evidently intoxicated with their success in having achieved the annexation of Texas, and are bent on future schemes of territorial aggrandizement. Some talk of gaining the whole of Oregon, others all Mexico. I heard one fellow-traveler say modestly, "We are going on too fast; but Mexico must in time be ours." On arriving at Philadelphia, I found some of the daily journals written in a tone well-fitted to create a war-panic, counting on the aid of France in the event of a struggle with Great Britain; boasting that if all the eastern cities were laid in ashes by an English fleet, they would rebuild them in five years, and extinguish all the debts caused by the war in thirty years; whereas England, borrowing as in the last war many hundred millions sterling, must become bankrupt or permanently crippled with taxation. I asked an acquaintance, whether the editor of such articles secretly wished for war, or wanted to frighten his readers into a pacific policy. "He has lately gone over," said he, "to the protectionist party. Having made large purchases of shares in an iron company, and fearing that, should peace continue, the free-traders would lower the tariff, he patriotically hopes for a war with England to enable him to make a fortune. He is one of those philanthropic monopolists who would have joined in a toast given some years ago at a public dinner by one of our merchants, 'May the wants of all

nations increase, and may they be supplied by Pennsylvania.'"

"But will his war dreams be realized, think you?" "Probably not; yet the mere anticipation of such a contingency is doing mischief, checking commercial enterprise, causing our state bonds to fall in value, and awakening evil passions. You will scarcely believe that I have heard men of respectable standing in the world declare, that if a war breaks out, we shall at least be able to sponge out our state debt!"

I found that the income tax laid on to pay the interest of this debt, is weighing heavily on Pennsylvania, and many a citizen is casting a wistful glance across the Delaware, at the untaxed fields and mansions of New Jersey. Some manage to evade half their burdens by taking houses in that state, and resorting in the winter season to Philadelphia for the sake of society. One of the Philadelphians assured me, that he and others paid sixteen per cent. on their income for state taxes; and after honestly responding to all the inquisitorial demands of the collectors, they had the mortification of thinking that men who are less conscientious escape half the impost. "Capital," he said, "is deserting this city, and some thriving store-keepers, whom you knew here in 1842, have transferred their business to New York. In your 'Travels in America,' you were far too indulgent to the Pennsylvanian Whigs, who promoted the outlay of government money on public works, which has been our ruin. The wealthy German farmers and democrats opposed that expenditure; and it is not German ignorance, as some Whigs pretend, which has entailed debt and disgrace on this state, but the extravagance of the influential merchants, who were chiefly Whigs. You see by the papers that the county of Lancaster, is 50,000 dollars in arrear in the payment of state taxes, and the punishment inflicted by government is to withhold the school-money from these defaulters, thereby prolonging the evil, if it be ignorance which has dulled their moral sense."

The reluctance to resort to coercive measures, on the part of the men in power, for fear of endangering their popularity, is striking; and John Bull would smile at a circular just issued and addressed by the state treasurer to counties, some of which

are three years in arrear. He praises others for their cheerful promptness in bearing their fair share of the public liabilities, and exhorts the rest to follow their good example, for the honor and credit of the Commonwealth. The necessity of compulsory measures is gently hinted at as a possible contingency, should they continue to be defaulters. As a proof, however, that more cogent methods of persuasion are sometimes resorted to, I see advertisements of the sale of city property for the discharge of taxes; and it is fair to presume, that patriotic exhortations have not always been without effect, or they would be thought too ridiculous to be employed.

I observed to a friend, that when I left the New Englanders, they were decidedly averse to war about Oregon. "Yes," he rejoined, "but they are equally against free trade; whereas, the people in the West, who are talking so big about fighting for Oregon, are in favor of a low tariff and more trade with England, which would make war impossible. Which of these two, think you, is practically the peace party?"

In the leading articles of several of the papers, I read some spirited recriminations in answer to English censures on the annexation of Texas. Its independence, they say, had been acknowledged by Great Britain, and its inhabitants had voluntarily joined the Union. Some journals talk of following "the classical example of the mother-country," and allude to the conquest of Sindh, and the intended "annexation of Borneo." A passage is also cited from a recent article in one of the leading London journals, to the following effect:—"That as the Punjâb must eventually be ours, the sooner we take possession of it the better, and the less blood and treasure will be spent in saving from anarchy the richest part of India." But it is easier thus to recriminate than to reply to the admirable protest published in the beginning of the present year (January, 1845), by a convention of delegates from various and opposite political parties in Massachusetts, which set forth, in strong terms, the unjustifiable manner in which Texas was originally filched from Mexico, and the tendency of such annexation to extend and uphold slavery, and "probably to lead to a Mexican war."

During our stay in Philadelphia, we heard much regret expressed at the establishment of what is called here an Irish quarter, entailing, for the first time, the necessity of keeping up a more expensive police. In the riots of May 6, 1844, many lives were lost, and a party has been formed of native Americans to resist what they call "the papal garrison." Although much sectarian feeling, mixed with the prejudice of race, may have been betrayed against the Irish Romanists, I find it impossible not to sympathize with the indignation cherished here in regard to the interference of aliens with the elections, and the danger which threatens the liberties of the country from fraudulent voting. Originally a residence of five years was required to confer the electoral franchise on a new settler, and the time did not begin to count till after a regular notification of his intention to settle and acquire the rights of citizenship, accompanied by forswearing his allegiance to any other sovereignty. The federalists imprudently extended the term to sixteen years, in the presidency of John Adams, which excluded more than half of the population in some newly peopled districts. The original term of five years after registration was again restored in Jefferson's presidency, and continued till the contest between John Quincy Adams and Jackson, when Mr. Buchanan carried his proposition that, instead of registration, two witnesses might depose on parole that the candidate for naturalization had resided five years. This regulation has led to much fraud and perjury; and cases so flagrant have occurred, that judges have been cashiered for conniving at them. The same rules, however, are not binding in all state elections, for in Virginia, at present, the right of citizenship demands a residence of seven years, while in Michigan, new comers can vote two years after their arrival.

How many of the stories related of fraudulent voting may be true, I can not pretend to decide; but I was amused at their number and variety. It came out, I am told, in evidence on a late trial, that convicts had been carried to the poll at New York, and then taken back to prison; and that the dexterity of those who manage the Irish vote often consists in making Paddy believe that he is really entitled to the franchise. One of these dupes

having voted several times over for one candidate, was at length objected to, and observed with *naïveté*; “that it was hard that his vote should at last be challenged, when so many inspectors had taken it before that same day.” An emigrant ship arrived at Newcastle, on the Delaware, in the heat of an election for governor; the Irish emigrants were asked if they would support the democratic candidate. “We are all for the opposition,” they replied; and the ingenuity of the canvasser was taxed to make them comprehend that the Ins in America, corresponded in their politics with the Outs in Great Britain.

Such anecdotes prove indisputably that the purity of the elections is at least impeached, and it must also be borne in mind that the system of ballot precludes all scrutiny after the election is over.

Dec. 13. Washington.—Went into the House of Representatives; the front seats in the gallery are reserved for ladies. We found the member for Connecticut, Mr. Rockwell, on his legs, delivering what seemed to me an admirable speech against the annexation of Texas, especially that part of its new constitution which prohibited the legislature from taking steps toward the future abolition of slavery. Some of the representatives were talking, others writing, none listening. The question was evidently treated as one gone by—mere matter of history, which the course of events had consigned to the vault of all the Capulets. Nevertheless, a feeling of irritation and deep disgust is pervading the minds of the anti-slavery party at this sudden accession of new territory, open to a slave population. A powerful reaction has begun to display itself, so that the incorporation of Texas into the Union may eventually be attended with consequences most favorable to the good cause, rousing the whole north to make a stand against the future extension of slavery. Mr. Winthrop has hailed this more hopeful prospect in the happiest strain of eloquence, addressing “the lone star of Texas,” as it was called, in the words of Milton :—

“Fairest of stars, *last in the train of night*,
If rather thou belong’st not to the dawn.”

Crossing the Rotunda, we passed into the Senate, and heard General Cass, of Michigan, delivering a set speech on the Oregon

question. The recent acquisition of Texas, which we had heard condemned in the other house as a foul blot on their national policy, was boasted of by him as a glorious triumph of freedom. He drew an animated picture of the aggrandizing spirit of Great Britain with her 150 millions of subjects, spoke of her arrogance and pride, the certainty of a war, if they wished to maintain their just rights, and the necessity of an immediate armament.

"Great Britain," he said, "might be willing to submit the Oregon question to arbitration, but the crowned heads, whom she would propose as arbiters, would not be impartial, for they would cherish anti-republican feelings." I thought the style of this oration better than its spirit, and it was listened to with attention; but in spite of the stirring nature of the theme, none of the senators betrayed any emotion.

When he sat down, others followed, some of whom read extracts from the recently delivered speeches of Sir Robert Peel and Lord John Russell on the Oregon affair, commenting freely and fairly upon them, and pointing out that there was nothing in the tone of the British Government, nor in the nature of their demands, which closed the door against an amicable adjustment. I came away from this debate much struck with the singular posture of affairs; for the executive and its functionaries seem to be doing their worst to inflame popular passions, while the legislature, chosen by universal suffrage, is comparatively calm, and exhibits that sense of a dangerous responsibility, which a president and his cabinet might rather have been expected to display.

In reference to one of the arguments in General Cass's speech, Mr. Winthrop soon afterward moved in the House of Representatives (Dec. 19, 1845), "That arbitration does not necessarily involve a reference to crowned heads; and if a jealousy of such a reference is entertained in any quarter, a commission of able and dispassionate citizens, either from the two countries concerned, or from the world at large, offers itself as an obvious and unobjectionable alternative."

A similar proposition emanated simultaneously, and without concert, from the English Cabinet, showing that they were regardless of precedents, and relied on the justice of their cause.

Although it was declined, the mere fact of a great nation having waived all punctilious etiquette, and offered to settle a point at issue by referring the question to private citizens of high character and learned in international law, proves that the world is advancing in civilization, and that higher principles of morality are beginning to gain ground in the intercourse between nations. "All who ought to govern," said a member of Congress to me, "are of one mind as to Lord Aberdeen's overture; but they who do govern here, will never submit to arbitration."

The Senate consists at present of fifty-nine members, and will soon be augmented by two from Texas and two from Iowa, the Union consisting now of twenty-seven states, with a population of about twenty millions.

The appearance of the members of the House of Representatives is gentlemanlike, although I doubt not that the scenes of violence and want of decorum described by many travelers, are correct pictures of what they witnessed. In this nation of readers they are so sensitive to foreign criticism, that amendment may be confidently looked for. At this moment, the papers, by way of retaliation, are amusing their readers with extracts from a debate in the Canada House of Assembly. The following may serve as an example :—"Our Canadian friends occasionally read us a lecture on courtesy and order, we therefore cite from a report of their legislative proceedings, what we presume they intend as a model for our imitation. Mr. De B. appealed to the chair to stop the member for Quebec, and threatened if he was not called to order, that he must go over and pull his nose; at which Mr. A. rejoined, 'Come and do it, you scoundrel!'" Another example of recrimination that I have lately seen, consisted in placing in two parallel columns, first an extract from the leading article of the London Times, rating the Americans in good set terms for their rudeness to each other in debate, and coarse abuse of England; and, secondly, an account given by the same journal of a disorderly discussion in the House of Commons on an Irish question, in which, among other incidents, a young member of the aristocracy (intoxicated let us hope) rose in the midst of the hubbub, and imitated the crowing of a cock.

A member of Congress, who frequented, when in London, the gallery of the House of Commons, tells me he was struck with what seemed an affectation of rusticity, members lolling in lounging attitudes on the benches with their hats on, speaking with their hands thrust into their breeches pockets, and other acts, as if in defiance of restraint. The English method of coughing down a troublesome member is often alluded to here, and has, on one occasion, been gravely recommended for adoption, as a parliamentary usage which might advantageously be imitated, rather than the limitation of each speaker to one hour, a rule now in force, which has too often the effect of making each orator think it due to himself to occupy the house for his full term.

It would be impossible to burlesque or caricature the ambitious style of certain members of Congress, especially some who have risen from humble stations, and whose schooling has been in the back-woods. A grave report, drawn up in the present session by a member for Illinois, as chairman of the Post-office Committee, may serve as an example. After speaking of the American republic as "the infant Hercules," and the extension of their imperial dominion over the "northern continent and oriental seas," he exclaims, "the destiny of our nation has now become revealed, and great events, quickening in the womb of time, reflect their clearly-defined shadows into our very eye-balls.

"Oh, why does a cold generation frigidly repel ambrosial gifts like these, or sacrilegiously hesitate to embrace their glowing and resplendent fate ?

"Must this backward pull of the government never cease, and the nation tug forever beneath a dead weight, which trips its heels at every stride ?"

From the Senate House we went to another part of the Capitol, to hear Mr. Webster plead a cause before the Judges of the Supreme Court. These judges wear black gowns, and are, I believe, the only ones in the United States who have a costume. The point at issue was most clearly stated, namely, whether the city of New York had a legal right to levy a tax of one dollar on every passenger entering that port, who had never before visited any port of the Union. The number of emigrants being

great, no less than 100,000 dollars had been annually raised by this impost, the money being applied chiefly as an hospital fund. It was contended that the Federal Government alone had the right of imposing duties on commerce, in which light this passenger tribute ought to be viewed. The Court, however, ruled otherwise.

It was pointed out to me, as a remarkable proof of the ascendancy of the democratic party in the Federal Government for many years past, that only one of all the judges now on the bench had been nominated by the Whigs.

One day, as we were walking down Pennsylvania Avenue with Mr. Winthrop, we met a young negro woman, who came up to him with a countenance full of pleasure, saying it was several years since she had seen him, and greeting him with such an affectionate warmth of expression, that I began to contrast the stiffness and coldness of the Anglo-Saxon manners with the genial flow of feeling of this southern race. My companion explained to me, that she was a very intelligent girl, and was grateful to him for an act of kindness he had once had an opportunity of showing her. I afterward learnt, from some other friends to whom I told this anecdote, that, three years before, Mr. Winthrop and a brother member of Congress from the north had been lodging in the house of this girl's mistress, and hearing that she was sentenced to be whipped for some offense, had both of them protested they would instantly quit the house if the mistress persevered. She had yielded, and at length confessed that she had been giving way to a momentary fit of temper.

Washington is situated in the district of Columbia, comprising an area of 100 square miles, borrowed from the neighboring states to form an independent jurisdiction by itself. Several attempts have been made to declare it free, but hitherto in vain, thanks to the union of the northern democrats and southern slave-owners, aided by the impracticable schemes of the abolitionists.

The view of the city and the river Potomac from the hill on which the Capitol stands is fine; but, in spite of some new public edifices built in a handsome style of Greek architecture, we are struck with the small progress made in three years since we

were last here. The vacant spaces are not filling up with private houses, according to the original plan, so that the would-be metropolis wears still the air of some projector's scheme which has failed. The principal hotels, however, have improved, and we were not annoyed, as when last here, by the odors left in the room by the colored domestics, who had no beds, but slept anywhere about the stairs or passages, without changing their clothes. With similar habits, in a hot climate, no servants of any race, whether free or slave, African or European, would be endurable.

In the public museum at the Patent Office I was glad to see a fine collection of objects of natural history, brought here by the late Exploring Expedition, commanded by Captain Wilkes. Among other treasures is a splendid series of recent corals, a good description of which, illustrated by plates, will soon be published by Mr. Dana, at the expense of Government. These zoophytes are accompanied by masses of solid limestone, occasionally including shells, recently formed in coral reefs, like those mentioned by Mr. Darwin as occurring in the South Seas, some as hard as marble, others consisting of conglomerates of pebbles and calcareous sand. In several of the specimens I saw the imbedded zoophytes and shells projecting from the weathered surface, as do the petrifications in many an ancient limestone where they have resisted disintegration more than the matrix. Other fragments were as white and soft as chalk; one in particular, a cubic foot in bulk, brought from one of the Sandwich Islands, might have been mistaken for a piece of Shakspeare's Cliff, near Dover. It reminded me that an English friend, a professor of political economy, met me about fifteen years ago on the beach at Dover, after he had just read my "Principles of Geology," and exclaimed, "Show me masses of pure white rock, like the substance of these cliffs, in the act of growing in the ocean over areas as large as France or England, and I will believe all your theory of modern causes." Since that time we have obtained data for inferring that the growth of corals, and the deposition of chalk-like calcareous mud, is actually going on over much wider areas than the whole of Europe, so that I am now entitled to claim my incredulous friend as a proselyte.

In one of the glass cases of the Museum I saw the huge skull of the *Megatherium*, with the remains of other extinct fossil animals found in Georgia—a splendid donation presented by Mr. Hamilton Couper. In another part of the room were objects of antiquarian interest, and among the rest some sculptured stones from the ruins of Palenque, inscribed with the hieroglyphic or picture-writing of the Aborigines, with which Stephen's lively work on Central America, and the admirable illustrations of Catherwood, had made us familiar. The camp-chest of General Washington, his sword, the uniform worn by him when he resigned his commission, and even his stick, have been treasured up as relics in this national repository. If the proposition lately made in the public journals, to purchase Washington's country residence and negro-houses at Mount Vernon, and to keep them forever in the state in which he left them, should be carried into effect, it would not only be a fit act of hero-worship, but in the course of time this farm would become a curious antiquarian monument, showing to after generations the state of agriculture at the period when the Republic was founded, and how the old Virginian planters and their slaves lived in the eighteenth century.

Before leaving Washington we called, with Mr. Winthrop, at the White House, the residence of the President. A colored servant in livery came to the door, and conducted us to the reception-room, which is well-proportioned and well-furnished, not in sumptuous style, but without any affectation of republican plainness. We were politely received by Mrs. Polk, her husband being engaged on public business. I was afterward introduced to General Scott, to Captain Wilkes, recently returned from his expedition to the South Seas, to Mr. Bancroft, Secretary of the Navy, and called on our minister, Mr. Pakenham, and our old friends, M. and Madame de Gerolt, the Prussian minister and his wife. I also examined a fine collection of fossils belonging to Mr. Markoe, who has taken an active part in founding an institution here for the promotion of science and natural history. The day before our departure I had a long and agreeable conversation with our ex-minister, Mr. Fox, whose sudden and unexpected death happened a few months later. I told him that some En-

glish travelers wondered that I should set out on a long tour when the English and American papers were descanting on the probability of a war. He said, that "when Macleod was detained prisoner in 1841, there was really some risk, because he might have been hanged any day by the New Yorkers, in spite of the desire of the Federal Government to save him ; but now there is no war party in England, and all reasonable men here, including the principal officers of the army and navy, are against it. Some of the western people may be warlike, for there are many patriots who believe that it is their destiny to rise on the ruins of the British empire ; but when the President, according to treaty, shall have given notice of a partition of Oregon, there will be time for negotiation. If one of two disputants threatens to knock the other down eighteen months hence, would you apprehend immediate mischief?" "They are not arming," said I. "No augury can be drawn from that fact," he replied ; "the people are against large peace establishments, knowing that there is no fear of hostile attacks from without unless they provoke them, and satisfied that their wealth and population are annually increasing. They are full of courage, and would develop extraordinary resources in a war, however much they would suffer at the first onset."

We then conversed freely on the future prospects of civilization in the North American continent. He had formed far less sanguine expectations than I had, but confessed, that though he had resided so many years in the country, he knew little or nothing of the northern states, especially of New England. When I dwelt on the progress I had witnessed, even in four years, in the schools and educational institutions, the increase of readers and of good books, and the preparations making for future scientific achievements, he frankly admitted that he had habitually contemplated the Union from a somewhat unfavorable point of view. I observed to him that Washington was not a metropolis, like London, nor even like Edinburgh or Dublin, but a town which had not thriven, in spite of government patronage. The members of Congress did not bring their families to it, because it would often take them away from larger cities, where they were

enjoying more refined and intellectual society. It was as if the Legislature of the British empire, representing not only England, Scotland, and Ireland, but Canada, Newfoundland, the West Indies, Australia, the Cape, and all the other dependencies of the British crown, were to meet in some third-rate town. Nor even then would the comparison be a fair one, because if there be one characteristic more than another which advantageously distinguishes three-fourths of the American population, it is the high social, intellectual, and political condition, relatively speaking, of the working classes. The foreign diplomatist residing in Washington lives within the borders of the slave territory, where the laborers are more degraded, and perhaps less progressive, than in any European state. Besides, the foreign ambassador, in his official and political capacity, too often sees exposed the weak side of the constitution of the Union, and has to deplore the powerlessness of the federal executive to carry out its own views, and to control the will of thirty independent states, or as many *imperia in imperio*. Just when he may have come to an understanding with the leading statesmen on points of international law, so that his negotiations in any other metropolis would have been brought to a successful issue, he finds that the real difficulties are only beginning. It still remains to be seen whether the government is strong enough to contend with the people, or has the will so to act, or whether it will court popularity by yielding to their prejudices, or even exciting their passions. Such is at this moment the position of affairs, and of our minister at Washington.

CHAPTER XV.

Washington to Richmond.—Legislature of Virginia in Session.—Substitution of White for Slave Labor.—Progress of Negro Instruction.—Slave-dealers.—Kindness to Negroes.—Coal of Oolitic Period near Richmond.—Visit to the Mines.—Upright Fossil Trees.—Deep Shafts, and Thickness of Coal Seams.—Explosion of Gas.—Natural Coke.—Resemblance of the more modern Coal-measures to old Carboniferous Rocks.—Whites working with free Negroes in the Mines.

Dec. 16, 1845.—FROM Washington we went to Richmond, and were glad to find that the great southern line of railway from Acquia Creek had been completed since we were last here, by which we escaped twelve miles of jolting over a rough road, described with so much humor by Dickens.

At Richmond I went into the Supreme Court of Appeal, and, as I entered, heard the counsel who was pleading, cite a recent decision of the English Court of Chancery as bearing on his case. The Houses of Legislature of Virginia were in session, and I heard part of a debate on a proposed railway from Baltimore to the valley of the Great Kanawha, in Western Virginia. Much jealousy was expressed lest the metropolis of Maryland, instead of Richmond, should reap the chief fruits of this project, at which I was not surprised ; for Virginia, with a population of 1,100,000 inhabitants, has no towns larger than Richmond and Norfolk. Beverly, and the early writers on this state, say, “that the people were prevented from congregating in large towns by the enjoyment of an extensive system of river navigation, which enabled merchant ships to sail up every where to the warehouses of each planter and receive their freight. Hence there was less activity and enterprise, and a want of the competition, which the collected life in cities promotes.”*

One of the senators, whom I had met the day before at a dinner party, conversed with me on the publication of the geological

* See “Graham’s History,” vol. i. p. 145.

maps and reports of the State Survey, which have been admirably executed under the direction of Professor W. B. Rogers.

The division of legislative duties between a central power, such as I had just seen deliberating at Washington, and the separate and independent states, such as that now in simultaneous action here at Richmond, seems the only form fitted for a widely extended empire, if the representative system is to prevail. The present population of the different states may be compared, on an average, to that of English counties, or, at least, to colonies of the British empire. At the same period of the year, when each is managing its own affairs in regard to internal improvements—schools, colleges, police, railways, canals, and direct taxes—the central parliament is discussing questions of foreign policy—the division of Oregon, the state of the army and navy, questions of free trade, and a high or low tariff.

By aid of railways, steamers, and the electric telegraph, it might be possible to conduct all the business of the twenty-seven states at Washington, but not with the same efficiency or economy; for, in that case, the attention of the members of the two houses of Congress would be distracted by the number and variety of subjects submitted to them, and the leading statesmen would be crushed by the weight of official and parliamentary business.

While at Richmond, we saw some agreeable and refined society in the families of the judges of the Supreme Court and other lawyers; but there is little here of that activity of mind and feeling for literature and science which strikes one in the best circles in New England. Virginia, however, seems to be rousing herself, and preparing to make an effort to enlarge her resources, by promoting schools and internal improvements. Her pride has been hurt at seeing how rapidly her old political ascendancy has passed away, and how, with so large and rich a territory, she has been outstripped in the race by newer states, especially Ohio. She is unwilling to believe that her negro population is the chief obstacle to her onward march, yet can not shut her eyes to the fact that the upper or hilly region of the Alleghanies, where the whites predominate, has been advancing in a more rapid ratio than the eastern counties. The

whites who live west of the Blue Ridge are about equal in number to those who live east of it; but the eastern division, or lower country, owns a greater number of slaves, and in right of them has more votes. The western men are talking loudly of a convention to place them on a more equal footing, some even desiring a separation into two states. There has also been a suggestion, that it might be well to allow a single county to declare itself free, without waiting for the emancipation of others. Among other signs of approaching change, I am told that several new settlers from the north have made a practical demonstration that slave labor is less profitable, even east of the Blue Ridge, than that of free whites. As we sailed down the Potomac from Washington, a landed proprietor of Fairfax county pointed out to me some estates in Virginia, on the right bank of the river, in which free had been substituted for slave labor since I was here in 1841. Some farmers came from New Hampshire and Connecticut, and, having bought the land at five dollars an acre, tilled it with their own hands and those of their family, aided in some cases by a few hired whites. To the astonishment of the surrounding planters, before the end of four years, they had raised the value of the soil from five to forty dollars per acre, having introduced for the first time a rotation of corn and green crops, instead of first exhausting the soil, and then letting it lie fallow for years to recover itself. They have also escaped the ruinous expense of feeding large bodies of negroes in those seasons when the harvest is deficient. They do not pretend to indulge in that hospitality for which the old Virginians and North Carolinians were celebrated, who often mortgaged their estates to pay the annual salary of their overseer, till he himself became the proprietor. The master, in that case, usually migrated with part of his negroes to settle farther south or southwest, introducing into the new states more civilized habits and manners than would have belonged to them had they been entirely peopled by adventurers from the north or from Europe.

On Sunday, December the 21st, we attended service in a handsome new Episcopal church, called St. Paul's, and heard the rector announce to the congregation that a decision had just

been come to (by a majority of all the proprietors of the church, as I was afterward informed), that one of the side galleries should henceforth be set apart exclusively for people of color. This resolution, he said, had been taken in order that they and their servants might unite in the worship of the same God, as they hoped to enter hereafter together into his everlasting kingdom, if they obeyed his laws. I inquired whether they would not have done more toward raising the slaves to a footing of equality in the house of prayer, if they had opened the same galleries to negroes and whites. In reply, I was assured that, in the present state of social feeling, the colored people would gain less by such joint occupancy, because, from their habitual deference to the whites, they would yield to them all the front places. There were few negroes present ; but I am told that, if I went to the Baptist or Methodist churches, I should find the galleries quite full. There are several Sunday schools here for negroes, and it is a singular fact that, in spite of the law against instructing slaves, many of the whites have been taught to read by negro nurses. A large proportion of the slaves and free colored people here are of mixed breed. The employment of this class as in-door servants in cities arises partly from the interest taken in them by their white parents, who have manumitted them and helped them to rise in the world, and partly because the rich prefer them as domestic servants, for their appearance is more agreeable, and they are more intelligent. Whether their superiority is owing to physical causes, and that share of an European organization which they inherit in right of one of their parents, or whether it may be referred to their early intercourse and contact with the whites,—in other words, to a better education,—is still matter of controversy.

Several Virginian planters have spoken to me of the negro race as naturally warm-hearted, patient, and cheerful, grateful for benefits, and forgiving of injuries. They are also of a religious temperament, bordering on superstition. Even those who think they ought forever to remain in servitude, give them a character which leads one to the belief that steps ought long ago to have been taken toward their gradual emancipation.

Had some legislative provision been made with this view before the annexation of Texas, a period being fixed after which all the children born in this state should be free, that new territory would have afforded a useful outlet for the black population of Virginia, and whites would have supplied the vacancies which are now filled up by the breeding of negroes. In the absence of such enactments, Texas prolongs the duration of negro slavery in Virginia, aggravating one of its worst consequences, the internal slave trade, and keeping up the price of negroes at home. They are now selling for 500, 750, and 1000 dollars each, according to their qualifications. There are always dealers at Richmond, whose business it is to collect slaves for the southern market; and, until a gang is ready to start for the south, they are kept here well fed, and as cheerful as possible. In a court of the jail, where they are lodged, I see them every day amusing themselves by playing at quoits. How much this traffic is abhorred, even by those who encourage it, is shown by the low social position held by the dealer, even when he has made a large fortune. When they conduct gangs of fifty slaves at a time across the mountains to the Ohio river, they usually manacle some of the men, but on reaching the Ohio river, they have no longer any fear of their attempting an escape, and they then unshackle them.

That the condition of slaves in Virginia is steadily improving, all here seem agreed. One of the greatest evils of the system is the compulsory separation of members of the same family. Since my arrival at Richmond, a case has come to my knowledge, of a negro who petitioned a rich individual to purchase him, because he was going to be sold, and was in danger of being sent to New Orleans, his wife and child remaining in Virginia. But such instances are far less common than would be imagined, owing to the kind feeling of the southern planters toward their "own people," as they call them. Even in extreme cases, where the property of an insolvent is brought to the hammer, public opinion acts as a powerful check against the parting of kindred. We heard of two recent cases, one in which the parents were put up without their children, and the mother being in tears, no one would bid till the dealer put the children up

also. They then sold very well. Another, where the dealer was compelled, in like manner, to sell a father and son together. I learned with pleasure an anecdote, from undoubted authority, very characteristic of the indulgence of owners of the higher class of society here toward their slaves. One of the judges of the Supreme Court at Richmond, having four or five supernumerary negroes in his establishment, proposed to them to go to his plantation in the country. As they had acquired town habits, they objected, and begged him instead to look out for a good master who would carry them to a city farther south, where they might enjoy a warm climate. The judge accordingly made his arrangements, and, for the sake of securing the desired conditions, was to receive for each a price below their market value. Just as they were about to leave Richmond for Louisiana, one of the women turned faint-hearted, at which all the rest lost courage; for their local and personal attachments are very strong, although they seem always ready to migrate cheerfully to any part of the world with their owners. The affair ended in the good-natured judge having to repurchase them, paying the difference of price between the sum agreed upon for each, and what they would have fetched at an auction.

Great sacrifices are often made from a sense of duty, by retaining possession of inherited estates, which it would be most desirable to sell, and which the owners can not part with, because they feel it would be wrong to abandon the slaves to an unknown purchaser. We became acquainted with the family of a widow, who had six daughters and no son to take on himself the management of a plantation, always a responsible, and often a very difficult undertaking. It was felt by all the relatives and neighbors to be most desirable that the property, situated in a remote part of the country, near the sea, should be sold, in order that the young ladies and their mother should have the benefit of society in a large town. They wished it themselves, being in very moderate circumstances, but were withheld by conscientious motives from leaving a large body of dependents, whom they had known from childhood, and who could scarcely hope to be treated with the same indulgence by strangers.

I had stopped at Richmond on my way south, for the sake of exploring geologically some coal mines, distant about thirteen miles from the city to the westward. Some of the largest and most productive of these, situated in Chesterfield County, belong to an English company, and one of them was under the management of Mr. A. F. Gifford, formerly an officer in the British army, and married to a Virginian lady. At their agreeable residence, near the Blackheath mines, we were received most kindly and hospitably. On our road from Richmond, we passed many fields which had been left fallow for years, after having been exhausted by a crop of tobacco. The whole country was covered with snow, and, in the pine forests, the tall trunks of the trees had a white coating on their windward side, as if one half had been painted. I persevered, nevertheless, in my examination of the mines, for my underground work was not impeded by the weather, and I saw so much that was new, and of high scientific interest in this coal-field, that I returned the following spring to complete my survey.

There are two regions in the state of Virginia (a country about equal in area to the whole of England proper), in which productive coal-measures occur. In one of these which may be called the western coal-field, the strata belong to the ancient carboniferous group, characterized by fossil plants of the same genera, and, to a great extent, the same species, as those found in the ancient coal-measures of Europe. The other one, wholly disconnected in its geographical and geological relations, is found to the east of the Appalachian Mountains, in the middle of that granitic region, sometimes called the Atlantic Slope.* In consequence of the isolated position of these eastern coal-beds, the lowest of which rest immediately on the fundamental granite, while the uppermost are not covered by any overlying fossiliferous formations, we have scarcely any means of determining their relative age, except by the characters of their included organic remains. The study of these, induced Professor W. B. Rogers, in his memoir, published in 1842,† to declare his opinion that

* See geological map of the U. S. in my "Travels in North America," vol. i. and ii. p. 92.

† Trans. of American Geologists, p. 298.

this coal was of newer date than that of the Appalachians, and was about the age of the Oolite or Lias, a conclusion which, after a careful examination of the evidence on the spot, and of all the organic remains which I could collect, appears to me to come very near the truth. If we embrace this conclusion, these rocks are the only ones hitherto known in all Canada and the United States, which we can prove, by their organic remains, to be of contemporaneous origin with the Oolitic or Jurassic formation of Europe. The tract of country occupied by the crystalline rocks, granite, gneiss, hornblende-schist, and others, which runs parallel to the Alleghany Mountains, and between them and the sea, is in this part of Virginia about seventy miles broad. In the midst of this area occurs the coal-field alluded to, twenty-six miles long, and varying in breadth from four to twelve miles. The James river flows through the middle of it, about fifteen miles from its northern extremity, while the Appomattox river traverses it near its southern borders. The beds lie in a trough (see section, fig. 4, p. 213), the lowest of them usually highly inclined where they crop out along the margin of the basin, while the strata higher in the series, occupying the central parts of the area, and which are devoid of organic remains and of coal, are nearly horizontal.

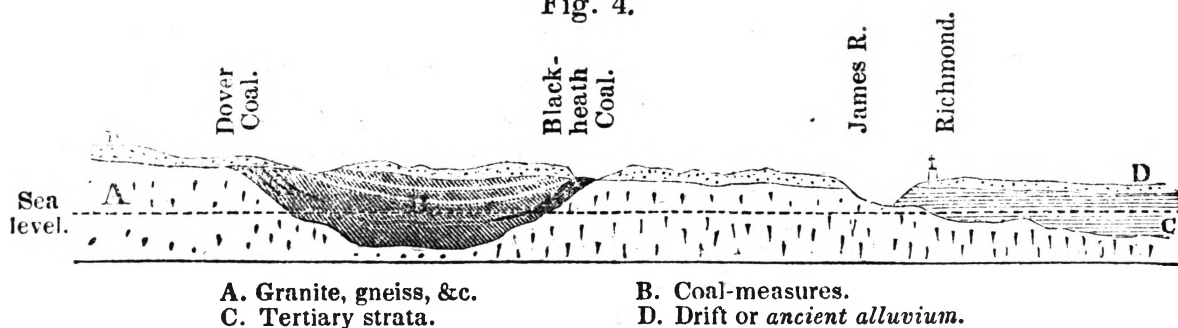
A great portion of these coal-measures consists of quartzose sandstone and coarse grit, entirely composed of the detritus of the neighboring granitic and syenitic rocks. Dark carbonaceous shales and clays, occasionally charged with iron ores, abound in the proximity of the coal-seams, and numerous impressions of plants, chiefly ferns and Zamites, are met with in shales, together with flattened and prostrate stems of Calamites and Equisetum. These last, however, the Calamites and Equisetum, are very commonly met with in a vertical position, more or less compressed perpendicularly. I entertain no doubt that the greater number of these plants standing erect in the beds above and between the seams of coal which I saw at points many miles distant from each other, have grown in the places where they are now buried in sand and mud, and this fact implies the gradual accumulation of the coal-measures during a slow and repeated subsidence of the whole region.

A great number of fossil fish, chiefly referable to two nearly allied species of a genus very distinct from any ichthyolite hitherto discovered elsewhere (a ganoid with a homocercal tail), occur in the lower strata, with a few shells; but they afforded me no positive characters to determine whether the deposit was of marine or fresh-water origin. Above these fossiliferous beds, which probably never exceed 400 or 500 feet in thickness, a great succession of grits, sandstone, and shales, of unknown depth, occur. They have yielded no coal, nor as yet any organic remains. No speculator has been bold enough to sink a shaft through them, and it is believed that toward the central parts of the basin they might have to pass through 2000 or 2500 feet of sterile rocks before reaching the fundamental coal-seams.

The next ideal section will show the manner in which I suppose the coal-field to be placed in a hollow in the granitic rocks, the whole country having suffered by great denudation, and the surface having been planed off almost uniformly, and at the same time overspread by a deep covering of gravel with red and yellow

Section showing the Geological Position of the James River, or East Virginian Coal-Field.

Fig. 4.



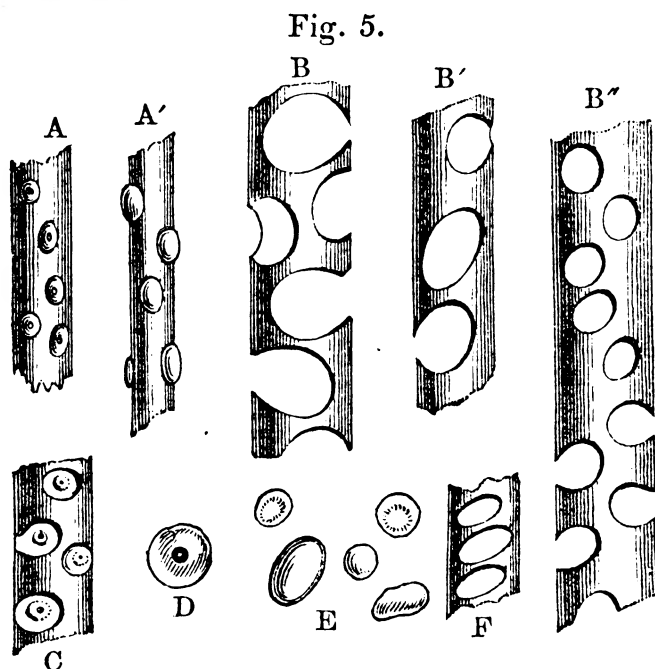
clay, concealing the subjacent formation from view, so that the structure of the region could not be made out without difficulty but for artificial excavations. It will be seen by the section that the tertiary strata first make their appearance at Richmond about thirteen miles from the eastern outcrop of the coal, and they continue to occupy the lower country between that city and the Atlantic.

The only beds of coal hitherto discovered lie in the lower part

of the coal-measures, and consequently come up to the surface all round the margin of the basin. As the dip is usually at a considerable angle, vertical shafts, from 400 to 800 feet deep, are required to reach the great seam, at the distance of a few hundred yards inside the edge of the basin. It is only, therefore, along a narrow band of country that the coal can crop out naturally, and even here it is rarely exposed, and only where a river or valley has cut through the superficial drift, often thirty or forty feet thick. The principal coal-seam occurs in greatest force at Blackheath and the adjoining parts of Chesterfield county, where the coal is for the most part very pure, and actually attains the unusual thickness of between thirty or forty feet. I was not a little surprised, when I descended, with Mr. Gifford, a shaft 800 feet deep, to find myself in a chamber more than forty feet high, caused by the removal of the coal. Timber props of great strength are required to support the roof, and although the use of wood is lavish here, as in most parts of the United States, the strong props are seen to bend under the incumbent weight. This great seam is sometimes parted from the fundamental granite by an inch or two of shale, which seems to have constituted the soil on which the plants grew. At some points where the granite floor touches the coal, the contact may have been occasioned by subsequent disturbances, for the rocks are fractured and shifted in many places. This more modern coal, as well as that of Newcastle, and other kinds of more ancient date, exhibits under the microscope distinct evidence of vegetable structure, consisting in this case principally of parallel fibers or tubes, whose walls are pierced with circular or elongated holes. See fig. 5. B. and F.

By analysis it is found that so far as relates to the proportions of carbon and hydrogen, the composition of this coal is identical with that of ordinary specimens of the most ancient coal of America and Europe, although the latter has been derived from an assemblage of plants of very distinct species. The bituminous coal, for example, of the Ohio coal-field, and that of Alabama, yields the same elements.

For many years the cities of New York and Philadelphia have been supplied with gas for lighting their streets and houses, from



Vegetable Structure of Mineral Charcoal from Clover-hill Mines, Virginia.

coal of the Blackheath mines, and the annual quantity taken by Philadelphia alone, has of late years amounted to 10,000 tons. We might have expected, therefore, that there would be danger of the disengagement of inflammable gases from coal containing so much volatile matter. Accordingly, here, as in the English coal-pits, fatal explosions have sometimes occurred. One of these happened at Blackheath, in 1839, by which forty-five negroes and two white overseers lost their lives; and another almost as serious, so lately as the year 1844.

Before I examined this region, I was told that a strange anomaly occurred in it, for there were beds of coke overlying others consisting of bituminous coal. I found, on visiting the various localities of this natural coke, that it was caused by the vicinity or contact of volcanic rocks (greenstone and basalt), which, coming up through the granite, intersect the coal-measures, or sometimes make their way laterally between two strata, appearing as a conformable mass. As in the Durham coal-field in England (in the Haswell collieries, for example), the igneous rock has driven out all the gaseous matter, and, where

it overlies it, has deprived the upper coal of its volatile ingredients, while its influence has not always extended to lower seams. In some spots, the conversion of coal into coke seems to have been brought about, not so much by the heating agency of the intrusive basalt, as by its mechanical effect in breaking up and destroying the integrity of the beds, and rendering them permeable to water, thereby facilitating the escape of the gases of decomposing coal.

In conclusion, I may observe that I was much struck with the general similarity of this more modern or Oolitic coal-field, and those of ancient or Paleozoic date in England and in Europe generally. I was especially reminded of the carboniferous rocks near St. Etienne, in France, which I visited in 1843. These also rest on granite, and consist of coarse grits and sandstone derived from the detritus of granite. In both coal-fields, the French and the Virginian, upright *Calamites* abound; fossil plants are met with in both, almost to the exclusion of other organic remains, shells especially being absent. The character of the coal is similar, but in the richness and thickness of the seams the Virginian formation is pre-eminent. When we behold phenomena so identical, repeated at times so remote in the earth's history, and at periods when such very distinct forms of vegetation flourished, we may derive from the fact a useful caution, in regard to certain popular generalizations respecting a peculiar state of the globe during the remoter of the two epochs alluded to. Some geologists, for example, have supposed an atmosphere densely charged with carbonic acid to be necessary to explain the origin of coal—an atmosphere so unlike the present, as to be unfit for the existence of air-breathing, vertebrate animals; but this theory they will hardly be prepared to extend to so modern an era as the Oolitic or Triassic.*

During my visit to one of the coal-pits, an English overseer, who was superintending the works, told me that within his memory there had been a great improvement in the treatment

* See a paper on this coal-field, by the author, *Quarterly Journal Geolog. Soc.*, August, 1847, vol. iii. p. 261, and an accompanying memoir, descriptive of the fossil plants, by Charles J. F. Bunbury, *For. S. G. S.*

of the negroes. Some years ago, a planter came to him with a refractory slave, and asked him to keep him underground for a year by way of punishment, saying, that no pay would be required for his hire. The overseer retorted that he would be no man's jailer. The British company at Blackheath having resolved not to employ any slaves, and Mr. Gifford, having engaged 130 free negroes, found he could preserve good discipline without corporal punishment; and he not only persuaded several newly arrived laborers from England to work with the blacks, but old Virginians, also, of the white race, engaged themselves, although their countrymen looked down upon them at first for associating with such companions. They confessed that, for a time, "they felt very awkward," but it was not long before the proprietors of other mines followed the example which had been set them.

VOL. I.—K

CHAPTER XVI.

Journey through North Carolina.—Wilmington.—Recent Fire and Passports for Slaves.—Cape Fear River and Smithfield.—Spanish Moss, and Uses of.—Charleston.—Anti-Negro Feeling.—Passage from Mulattoes to Whites.—Law against importing free Blacks.—Dispute with Massachusetts.—Society in Charleston.—Governesses.—War Panic.—Anti-English Feeling caused by Newspaper Press.—National Arbitration of the Americans.—Dr. Bachman's Zoology.—Geographical Representation of Species.—Rattle-Snakes.—Turkey Buzzards.

Dec. 23, 1845.—THE monotony of the scenery in the principal route from the northern to the southern states is easily understood by a geologist, for the line of railroad happens to run for hundreds of miles on the tertiary strata, near their junction with the granitic rocks. Take any road in a transverse direction from the sea coast to the Alleghanies, and the traveler will meet with the greatest variety in the scenery.* In passing over the tertiary sands and clays, we see Pine Barrens where the soil is sandy, and a swamp, or cane-brake, where the argillaceous beds come to the surface. The entire absence of all boulders and stones, such as are observable almost every where in the New England States and New York, is a marked geological peculiarity of these southern lowlands. Such erratic blocks and boulders are by no means confined in the north to the granitic or secondary formations, for some of the largest of them, huge fragments of granite, for example, twenty feet in diameter, rest on the newer tertiary deposits of the island of Martha's Vineyard, off the coast of Massachusetts.

After leaving Richmond, I remarked that the railway from Weldon to Wilmington, through North Carolina, had not improved in the last three years, nor the stations or inns where we stopped. I was told, in explanation, that this line would soon

* See my "Travels in North America," vol. i. p. 93; and the colored geological map, vol. ii.

be superseded, or nearly so, by a more inland road now making through Raleigh. We reached Wilmington without much delay, in spite of the ice on the rails, and the running of our locomotive engine against a cow. On approaching that town, we were glad to see that the ground was not covered with snow as every where to the northward, and our eyes were refreshed by the sight of verdure, caused by the pines, and by two kinds of evergreen oaks, besides magnolias, and an undergrowth of holly and kalmia. In the streets and suburbs of Wilmington, the Pride-of-India tree (*Melia azedarach*) is very conspicuous, some of them twenty-five years old, having survived many a severe frost, especially that of the autumn of the present year, the severest since 1835. There are also some splendid live oaks here (*Quercus virens*), a tree of very slow growth, which furnishes the finest timber for ship-building.

We reached Wilmington after the steamboat for Charleston had departed, and I was not sorry to have a day to collect tertiary fossils in the cliffs near the town. The streets which had just been laid in ashes when we were here four years ago, are now rebuilt; but there has been another fire this year, imputed very generally to incendiaries, because it broke out in many places at once. There had been a deficiency of firemen, owing to the state having discontinued the immunity from militia duty, formerly conceded to those who served the fire-engines. The city, however, has now undertaken to find substitutes for young men who will join the fire companies. A lady told me that, when the conflagration burst forth very suddenly, she was with a merchant whose house was not insured, and, finding him panic-struck, and incapable of acting for himself, she had selected his ledgers and other valuables, and was carrying them away to her own house; but on the way the civic guard stopped her in the dark, and, suspecting her to be a person of color, required her to show her pass. She mentioned this incidentally, as a serious cause of delay when time was precious; but it brought home forcibly to our minds the extraordinary precautions which one half the population here think it necessary to take against the other half.

A large export of turpentine is the chief business of this port, and gashes are seen cut in the bark of the pines in the neighboring forest, from which resin exudes. The half decayed wood of these resinous pines forms what is called light wood, burning with a most brilliant flame, and often used for candles, as well as for reviving the fire. A North Carolinian is said to migrate most unwillingly to any new region where this prime luxury of life is wanting.

When we sailed for Charleston, the steamer first proceeded thirty miles to the mouth of the Cape Fear river, and then anchored there for several hours at a village called Smithfield, in North Carolina. Here I strolled along the shore, and in a few minutes found myself in a wild region, out of sight of all human habitations, and every sign of the work of man's hands. The soil, composed of white quartzose sand, was hopelessly barren. Coming to a marsh, I put up many peewits, which flew round me, uttering a cry resembling that of our European species. The evergreen oaks round the marsh were hung with Spanish moss, or *Tillandsia*, the pods of which are now full of downy seeds. This plant is not a parasite like the mistletoe, of which a species is also common on the trees here, but simply supports itself on trees, without sending any roots into them, or drawing nourishment from their juices. It is what the botanists call an epiphyte, and is precisely the same species (*Tillandsia usneoides*), which is also common in Brazil; so that as we journey southward, this flowering epiphyte, together with the palmetto, or fan-palm, may be regarded as marking an approach toward a more tropical vegetation. When dried, the outer soft part of the *Tillandsia* decays and leaves a woody fiber in the middle, much resembling horse-hair in appearance, and very elastic. It is used in the United States, and exported to Liverpool, for stuffing mattresses. In preparing it they first bury the moss, and then take it up again when the exterior coating has rotted off. The birds also select only the woody fiber of the withered or dead stems for building their nests.

On the morning of Christmas-day, we reached Charleston, S.C., and found the interior of the Episcopal church of St. Philip

adorned with evergreens and with artificial flowers, in imitation of magnolias and asters. During the whole service the boys in the streets were firing pistols and letting off fireworks, which reminded me of the liberal expenditure of gunpowder indulged in by the Roman Catholics in Sicily, when celebrating Christmas in the churches. I once heard a file of soldiers at Girgenti fire off their muskets inside a church. Here at least it was on the outside ; but, as it was no part of the ceremony, it was a greater interruption to the service. We saw some of the white race very shabbily dressed, and several mulattoes in the church, separated from the whites, in fashionable attire, which doubtless they were fully entitled to wear, being much richer. Instead of growing reconciled to the strong line of demarkation drawn between the two races, it appears to me more and more unnatural, for I sometimes discover that my American companions can not tell me, without inquiry, to which race certain colored individuals belong ; and some English men and women, of dark complexion, might occasionally be made to feel awkward, if they were traveling with us here. On one occasion, the answer to my query was, " If I could get sight of his thumb nail I could tell you." It appears that the white crescent, at the base of the nail, is wholly wanting in the full blacks, and is that peculiarity which they acquire the last as they approximate by intermixture, in the course of generations, toward the whites.

I have just seen the following advertisement in a newspaper : —" Runaway.—Reward. A liberal reward will be given for the arrest of a boy named Dick. He is a bright mulatto—so bright, that he can readily, as he has done before, pass himself for a white. He is about thirty years of age," &c. Another advertisement of a runaway negro, states, " his color is moderated by in-door work."

So long as the present system continues, the idea of future amalgamation must be repugnant to the dominant race. They would shrink from it just as a European noble would do, if he were told that his grandchild or great grandchild would intermarry with the direct descendant of one of his menial servants. That the alleged personal dislike of the two races toward each

other, so much insisted upon by many writers, must arise chiefly from prejudice, seems proved, not only by the mixture of the races, but by the manner in which we see the Southern women, when they are ill, have three or four female slaves to sleep on the floor of their sick room, and often consign their babes to black nurses to be suckled.

That the attainder of blood should outlast all trace of African features, betrays a feeling allied to the most extravagant aristocratic pride of the feudal ages, and stands out in singular relief and contrast here in the South, where the whites, high and low, ignorant and educated, are striving among themselves to maintain a standard of social equality, in defiance of all the natural distinctions which difference of fortune, occupation, and degrees of refinement give rise to.

A few years ago a ship from Massachusetts touched at Charleston, having some free blacks on board, the steward and cook being of the number. On their landing, they were immediately put into jail by virtue of a law of South Carolina, not of very old standing. The government of Massachusetts, in a state of great indignation, sent a lawyer to investigate the case and remonstrate. This agent took up his abode at the Charleston Hotel, where we are now comfortably established. A few days after his arrival, the hotel was surrounded, to the terror of all the inmates, by a mob of "gentlemen," who were resolved to seize the New England envoy. There is no saying to what extremities they would have proceeded, had not the lawyer's daughter, a spirited girl, refused to leave the hotel. The excitement lasted five days, and almost every northern man in Charleston was made to feel himself in personal danger. At length, by the courage and energy of some of the leading citizens, Mr. H—— was enabled to escape, and then the most marked attentions were paid, and civilities offered, to the young lady, his daughter, by the families of the very men who had thought it right, "on principle," to get up this riot. The same law has given rise to some very awkward disputes with the captains of English vessels, whose colored sailors have, in like manner, been imprisoned. To obtain redress for the injury, in such cases, is impossible. The Federal

Government is too weak to enforce its authority, and the sovereign state is sheltered under the ægis of the grand confederacy.

By virtue of a similar law, also, in force in Alabama, the crews of several vessels, consisting of free blacks, have been committed to jail at Mobile, and the captains obliged to pay the costs, and give bonds to carry them away.

I asked a New England merchant, who is here, why the city of Charleston did not increase, having such a noble harbor. He said, "There have been several great fires, and the rich are absentees for half the year, flying from malaria. Besides, you will find that large cities do not grow in slave states as in the North. Few, if any of the ships, now in this harbor, belong to merchants of Charleston."

We were as much pleased with what we saw of the society of Charleston, during this short visit, as formerly, when we were here in 1842. I have heard its exclusiveness much commented on; for there are many families here, whose ancestors started from genteel English stocks in Virginia two hundred years ago, and they and some of the eminent lawyers and others, who, by their education and talents, have qualified themselves to be received into the same circle, do not choose to associate on intimate terms with every one who may happen to come and settle in the place. There is nearly as wide a range in the degrees of refinement of manners in American as in European society, and, to counterbalance some unfavorable circumstances, the social system has also some advantages. There is too great a predominance of the mercantile class, and the democracy often selects rude and unpolished favorites to fill stations of power; but such men are scarcely ever without some talent. On the other hand, mere wealth is less worshiped than in England, and there is no rank and title to force men of slender abilities, and without even agreeable manners, into good company, or posts of political importance.

The treatment in the southern states of governesses, who usually come from the North or from England, is very kind and considerate. They are placed on a much greater footing of equality with the family in which they live, than in England. Occasionally we find that the mother of the children has staid at

home, in order that the teacher may take her turn, and go out to a party. This system implies a great sacrifice of domestic privacy; but when the monotony of the daily routine of lessons is thus relieved to the instructress, the pupil must also be a gainer. Their salaries are from 50 to 100 guineas, which is more than they receive in the northern states.

The negroes here have certainly not the manners of an oppressed race. One evening, when we had gone out to dine in the suburbs, in a close carriage, the same coachman returned for us at night with an open vehicle. It was very cold, the frost having been more intense this year than any winter since 1835, and I remonstrated strongly; but the black driver, as he shut the door, said, with a good-humored smile, "that all the other carriages of his master were engaged;" and added, "Never mind, it will soon be over!"

One of the judges of the Admiralty Court tells me that, on Christmas eve, the day we came here, at nine o'clock at night, when he was just going to bed, an English resident came to him whose mind was so full of the prevailing war-panic, that nothing would satisfy him but the obtaining immediate letters of naturalization. He seemed to think that hostilities with England might break out in the course of the night, and that, in consequence, all his property would be confiscated. He was accordingly enrolled as a citizen, "although," said the judge, "we shall not gain much by his courage, should we have to defend Charleston against a British fleet."

Some months ago a British post-office steam-ship sailed into the harbor here, and took soundings in various places, and this incident has given offense to many, although in reality the survey was made under the expectation that the proposed scheme for extending the line of British West India mail-steamers along this coast would soon take effect.

I asked a South Carolinian, a friend of peace, and one who thinks that a war would ruin the maritime states, why so many of the people betrayed so much sympathy with the hostile demonstration got up by the press against England. "We have a set of demagogues," he replied, "in this country, who trade on the

article called 'hatred to England,' as so much political capital, just as a southern merchant trades in cotton, or a Canadian one in lumber. They court the multitude by blustering and by threatening England. There is a natural leaning in the South toward Great Britain, as furnishing a market for their cotton, and they are averse to the high tariff which the northerners have inflicted on them. But these feelings are neutralized by a dislike of the abolitionist party in England, and by a strong spirit of antagonism to Great Britain, which the Irish bring over here. All these sources of estrangement, however, are as nothing in comparison with the baneful effect of your press, and its persevering misrepresentation of every thing American. Almost every white man here is a reader and a politician, and all that is said against us in England is immediately cited in our newspapers, because it serves to augment that political capital of which I have spoken." I remarked that the nation and its government are not answerable for all the thoughtless effusions of anonymous newspaper writers, and that the tone of the English journals, since the agitation of the Oregon affair, had been temperate, guarded, and even courteous. "It is very true," he said; "the Times, in particular, formerly one of the most insolent and malignant. But the change has been too sudden, and the motive too transparent. The English know that the world can never suspect them of want of courage if they show a disinclination to go to war. Not wishing to waste their blood and treasure for so useless a possession as Oregon, they are behaving like a man who, having insulted another, has no mind, when called out, to fight a duel about nothing. He therefore makes an apology. But such civility will not last, and if the anonymous abuse habitually indulged in were not popular, it would long ago have ceased."

A short time after this conversation, I fell in with a young officer of the American navy who was wishing for war, partly for the sake of active service, but chiefly from intense nationality. "We may get the worst of it," he said, "for a year or two, but England will not come out of the struggle without being forced to acknowledge that she has had to deal with a first-rate instead

of a second-rate power." Soon after this I met an English sportsman, who had been traveling for his amusement in the western states, where he had been well received, and liked the people much, but many of them had told him, "We must have a brush with the English before they will respect us."

This sentiment is strong with a certain party throughout the Union, and would have no existence if they did not respect the English, and wish in their hearts to have their good opinion. It may be well for an old nation to propound the doctrine that every people ought to rest on their own dignity, and be satisfied with their place in the world without troubling themselves about what others think of them, or running the risk of having applied to them the character which Goldsmith ascribed to the French of his times :—

"Where the weak soul within itself unblest,
Leans for support upon another's breast."

But they whose title to consideration is new, however real, will rarely occupy their true place unless they take it ; whereas an older nation has seldom to assert its claims, and they are often freely conceded, long after it has declined from its former power. To an ambitious nation, feeding its imagination with anticipations of coming greatness, it is peculiarly mortifying to find that what they have actually achieved is barely acknowledged. They grow boastful and impatient to display their strength. When they are in this mood, no foreign country should succumb to them ; but, on the other hand, it is equally impolitic and culpable to irritate them by disparagement, or by not yielding to them their proper place among the nations. "You class us," said one of their politicians to me in Washington, "with the South American republics ; your ambassadors to us come from Brazil and Mexico to Washington, and consider it a step in their advancement to go from the United States to Spain, or some second-rate German court, having a smaller population than two of our large states. Yet, in reality, where is there a people in the world, except France, with which it so much concerns you to live in amity as the United States, and with what other nation have you and your chief colonies so much commercial intercourse?"

On listening to complaints against the English press, my thoughts often recurred to Bonaparte's prosecution of the royalist emigrant, Peltier, after the peace of Amiens, February, 1803, and the appeal to the jury of Sir James Mackintosh, as counsel for the defendant, on the want of dignity on the part of the First Consul, then in reality the most powerful sovereign in Europe, in persecuting a poor, defenseless, and proscribed exile, for abusive editorial articles. The court and jury were probably of the same mind; but the verdict of guilty showed that they deemed it no light matter that the peace of two great nations should be disturbed, by permitting anonymous libels, or a continued outpouring of invective and vituperation, calculated to provoke the ruler of a friendly country. In America the sovereign people read every thing written against them, as did Napoleon to the last, and, like him, with unmitigated resentment.

Before leaving Charleston I called on Dr. Bachman, whose acquaintance I had made in 1842, and was glad to see on his table the first volumes of a joint work by himself and Audubon, on the land quadrupeds of North America. These authors will give colored figures and descriptions of no less than 200 mammalia, exclusive of cetacea, all inhabiting this continent between the southern limits of the Arctic region and the Tropic of Cancer, for they now include Texas in the United States. Not more than seventy-six species are enumerated by preceding naturalists, and several of these are treated by Bachman and Audubon not as true species but mere varieties. Their industry, however, in augmenting the list of new discoveries, is not always welcomed by the subscribers, one of whom has just written to say, "if you describe so many squirrels, I can not go on taking in your book." The tribe alluded to in this threatening epistle, especially the striped species, is most fully represented in North America, a continent so remarkable for its extent of woodland and the variety of its forest trees. Yet, after traveling so much in the woods, I had never got sight of more than three or four species, owing, I am informed, to their nocturnal habits. I regretted that I had not yet seen the flying squirrel in motion, and was surprised to hear that Dr. Bachman had observed about a hundred of them

every evening, for several weeks, near Philadelphia, on two tall oaks, in the autumn, when acorns and chestnuts were abundant, and when they had spare time for play. They were amusing themselves by passing from one tree to another, throwing themselves off from the top of one of the oaks, and descending at a considerable angle to near the base of the other; then inclining the head upward just before reaching the ground, so as to turn and alight on the trunk, which they immediately climbed up to repeat the same manœuvre. In this way there was almost a continuous flight of them crossing each other in the air between the two trees.

I had heard much of the swamp-rabbit, which they hunt near the coast in South Carolina and Georgia, and was glad to see a stuffed specimen. It is an aquatic hare (*Lepus palustris*), diving most nimbly, and outswimming a Newfoundland dog.

Dr. Bachman pointed out to me ten genera of birds, and ten of quadrupeds, all peculiar to North America, but each represented on the opposite side of the Rocky Mountains by distinct species. The theory of specific centers, or the doctrine that the original stock of each species of bird and quadruped originated in one spot only, may explain in a satisfactory manner one part of this phenomenon; for we may assume that a lofty chain of mountains opposed a powerful barrier to migration, and that the mountains were more ancient than the introduction of these particular quadrupeds and birds into the planet. But the limitation of peculiar generic types to certain geographical areas, now observed in so many parts of the globe, points to some other and higher law governing the creation of species itself, which in the present state of science is inscrutable to us, and may, perhaps, remain a mystery forever. The adaptation of peculiar forms, instincts, qualities, and organizations to the present geography and climate of a region, may be a part only of the conditions which govern in every case the relations of the animate beings to their habitations. The past condition and changes of the globe and its inhabitants, throughout the whole period when the different beings were entering, each in succession, upon the scene, and all the future conditions and changes to the end of vast periods, during which they may be destined to exist, ought to be

known, before we can expect to comprehend why certain types were originally selected for certain areas, whether of land or water.

In the museum of the Medical College, Professor Shepard showed me a fine specimen of the large rattle-snake of South Carolina (*Crotalus adamantinus*), preserved in spirits. It was said to have been nine years old, having six rattles, the tail acquiring one annually after the third year. When brought into the laboratory in winter in a torpid state, an electric shock had been communicated to it, which threw it into a state of extreme excitement. Two tortoises, nearly torpid, were also put by the professor into a glass bell filled with laughing gas, and they immediately began to leap about with great agility, and continued in this state of muscular excitement for more than an hour.

In both my tours in America, I heard stories not only of dogs, which had died suddenly from the bite of rattle-snakes, but men also ; and the venom is said to be more virulent in the south. I rejoiced, therefore, that I had chosen the coldest season for my visit to these latitudes ; but it seemed singular that in my wanderings to explore the rocks in various states, I had never yet got sight of a single snake, or heard its rattle. That they make a much greater figure in books of travels than in real life, I can not but suspect.

Almost all the best houses in Charleston are built with verandahs, and surrounded with gardens. In some of the streets we admired the beautiful evergreens, and remarked among them the *Prunus virginiana*, with black cherries hanging to it, and *Magnolia grandiflora*. The number of turkey buzzards is surprising. I have seen nine of them perched side by side, like so many bronze statues, breaking the long line of a roof in the clear blue sky, while others were soaring in the air, each feather, at the extremity of their extended wings, being spread out, so as to be seen separate from the rest. A New England friend, whom we met here, seeing my interest in these birds, told me they are the sole scavengers of the place, and a fine of five dollars is imposed on any person who kills one. "You are lucky in being here in a cold season ; if you should come back in summer, you would think that these vultures had a right to the whole city, it stinks so intolerably."

CHAPTER XVII.

Charleston to Savannah.—Beaufort River, or Inland Navigation in South Carolina.—Slave Stealer.—Cockspur Island.—Rapid Growth of Oysters.—Eagle caught by Oyster.—Excursion from Savannah to Skiddaway Island.—Megatherium and Mylodon.—Cabbage Palms, or Tree Palmettos.—Deceptive Appearance of Submarine Forest.—Alligators swallowing Flints.—Their Tenacity of Life when decapitated.—Grove of Live Oaks.—Slaves taken to Free States.

Dec. 28, 1845.—A FINE steam-ship, the General Clinch, conveyed us to Savannah. I was surprised, when sailing out of the beautiful harbor of Charleston, on a bright scorching day, to see a cloud of smoke hanging over the town, and learned that they burn here not a little of what is called Liverpool coal. Among others on board, was a female passenger from one of the western states, who, having heard me make inquiries for my wife, went up to her in the ladies' cabin and said, "Your old man is mighty eager to see you;" "old man," as we afterward found, being synonymous with husband in the West. We were to go by the inland navigation, or between the islands and the coast. After passing Edisto Point, we ran aground at the entrance of St. Helena's Sound, in mid-passage, and were detained some hours till the tide floated us off to the westward, through the winding mazes of a most intricate channel, called the Beaufort River. We passed between low sandy islands, and an equally low mainland, covered with evergreen oaks, and long-leaved pines and palmettos, six or seven feet high. Sometimes we sailed by a low bluff or cliff of white sand, two or three feet in height, then by a cotton plantation, then by large salt marshes covered with reeds, on which the cattle are supported when fodder is scarce in winter. The salt water in this narrow channel was as calm as a lake, and perfectly clear. Numerous wild ducks were diving as our steamboat approached, and beds of oysters were uncovered between high and low water mark. It

was a novel and curious scene, especially when we approached Beaufort, a picturesque town composed of an assemblage of villas, the summer residences of numerous planters, who retire here during the hot season, when the interior of South Carolina is unhealthy for the whites. Each villa is shaded by a verandah, surrounded by beautiful live oaks and orange trees laden with fruit, though with leaves slightly tinged by the late severe frost. It is hoped that these orange trees will not suffer as they did in February, 1835, for then the cold attacked them much later in the season, and after the sap had risen. The Pride-of-India tree, with its berries now ripe, is an exotic much in favor here. A crowd of negroes, in their gay Sunday clothes, came down to look at our steamboat, grinning and chattering, and looking, as usual, perfectly free from care, but so ugly, that although they added to the singularity and foreign aspect of the scene, they detracted greatly from its charms.

Had it not been for the dense beds of oysters between high and low water mark, hundreds of which adhere to the timbers of the pier at Beaufort, as barnacles do in our English ports, I might have supposed the channel to be really what it is called, a river.

An old Spanish fort, south of Beaufort, reminded me that this region had once belonged to the Spaniards, who built St. Augustine, still farther to the south, the oldest city in the United States, and I began to muse on the wonderful history of the Anglo-Saxon race in settling these southern states. To have overcome and driven out in so short a time Indians, Spaniards, and French, and yet, after all, to be doomed to share the territory with three millions of negroes !

Of this latter race, we had not a few passengers on board. Going into the steerage to converse with some of them, my curiosity was particularly attracted to a group of three, who were standing by themselves. The two younger, a girl and a lad, were very frank, and willing to talk with me, but I was immediately joined by a young white man, not ill-looking, but who struck me as having a very determined countenance for his age. "These colored people," he said, "whom you have been speaking to, belong to me, and they have probably told you that I have

brought them by railway from Augusta to Charleston. I hope to dispose of them at Savannah, but if not, I shall take them to Texas, where I may sell them, or perhaps keep them as laborers and settle there myself." He then told me he had fought in the wars for the independence of Texas, which I afterward found was quite true, and, after telling me some of his adventures, he said, "I will take 450 dollars for the girl, and 600 for the boy; they are both of pure blood, would stand a hot climate well; they can not read, but can count up to a thousand." By all these qualities, negative and positive, he evidently expected to enhance in my eyes the value of the article which he meant me to buy; and no sooner did he suspect, by one of my questions, that I was a foreigner traveling for my amusement, than he was off the subject, and I attempted in vain to bring him back to it and to learn why the power of counting was so useful, while that of reading was undesirable. About three weeks after this incident, when we were at Macon in Georgia, there was a hue and cry after a thief who had stolen five negroes near Augusta, and had taken them to Savannah, in the General Clinch, where he had sold one of them, a girl, for 450 dollars. From Savannah he had been traced with the remaining four, by railway, to Macon, whence it was supposed he had gone south. The description of the delinquent left me no doubt that he was my former fellow-traveler, and I now learnt that he was of a respectable family in Georgia, the spoiled child of a widowed mother, self-willed and unmanageable from his boyhood, and who had gone off against the wishes of his relations to fight in Texas. I recollected that when we were at Beaufort, none of his negroes had gone ashore, and that he had kept his eye always anxiously on them during our stay there. I also remarked, that the planters on board, who, for the most part, were gentlemanlike in their manners, shunned all intercourse with this dealer, as if they regarded his business as scarcely respectable. A vast majority of the slave-owners acquiesced originally in the propriety of abolishing the external slave-trade; but the internal one can not, they say, be done away with, without interfering with the free circulation of labor from an overpeopled district to another where hands are scarce. To

check this, they maintain, would injure the negroes as much as their masters. When they are forced to part with slaves, they usually sell one to another, and are unwilling to dispose of them to a stranger. It is reckoned, indeed, quite a disgrace to a negro to be so discarded. When the former master bids for one of his "own people," at a sale of property forced on by debt, the public are unwilling to bid against him. It is clear, therefore, that a dealer must traffic in the lowest and most good-for-nothing class of laborers, many of whom, in Europe, would be in the hands of policemen, or in convict ships on their way to a penal settlement. I heard of one of these dealers, who, having made a large fortune, lived sumptuously in one of the towns on the Mississippi after retiring from business, but in spite of some influential connections, he was not able to make his way into the best society of the place.

At the mouth of the Savannah River we passed Cockspur Island, where there is a fort. The sea is said to have encroached many hundred yards on this island since 1740, as has happened at other points on this low coast; but there has been also a gain of land in many places. An officer stationed at the fort told me, that when a moat was dug and the sea-water admitted, oysters grew there so fast, that, at the end of two years, they afforded a regular supply of that luxury to the garrison. The species of oyster which is so abundant here (*Ostrea virginica*) resembles our European *Ostrea edulis* in shape, when it lives isolated and grows freely under water; but those individuals which live gregariously, or on banks between high and low water, lose their round form and are greatly lengthened. They are called racoon oysters, because they are the only ones which the racoons can get at when they come down to feed at low tide. Capt. Alexander, of the U.S. artillery, told me that, in the summer of 1844, he saw a large bald-headed eagle, *Aquila leucocephala*, which might measure six feet from tip to tip of its extended wings, caught near the bar of the Savannah river by one of these racoon oysters. The eagle had perched upon the shell-fish to prey upon it, when the mollusk suddenly closed its valves and shut in the bird's claw, and would have detained its enemy till the rising tide had come up and drowned it, had not the cap-

tain in his boat secured it with a noose, and disengaged it from the oyster. He flapped his wings violently as they approached, but could not escape.

Dec. 29.—Savannah has a population of 12,000 souls, but seems rather stationary, though some new buildings are rising. The mildness of its climate is attributed partly to the distance to which the Alleghany Mountains retire from the sea coast in this latitude, and partly to the proximity of the Gulf-stream. But many of the northern invalids, who are consumptive, and had hoped to escape a winter by taking refuge in this city, are complaining of the frost, and say that the houses are inadequately protected against cold. The sun is very powerful at mid-day, and we see the *Camellia Japonica* in the gardens flowering in the open air; but the leaves of the orange trees look crisp and frost-bitten, and I am told that the thermometer lately fell as low as 17° Fahr., so that even the salt water froze over in some of the marshes.

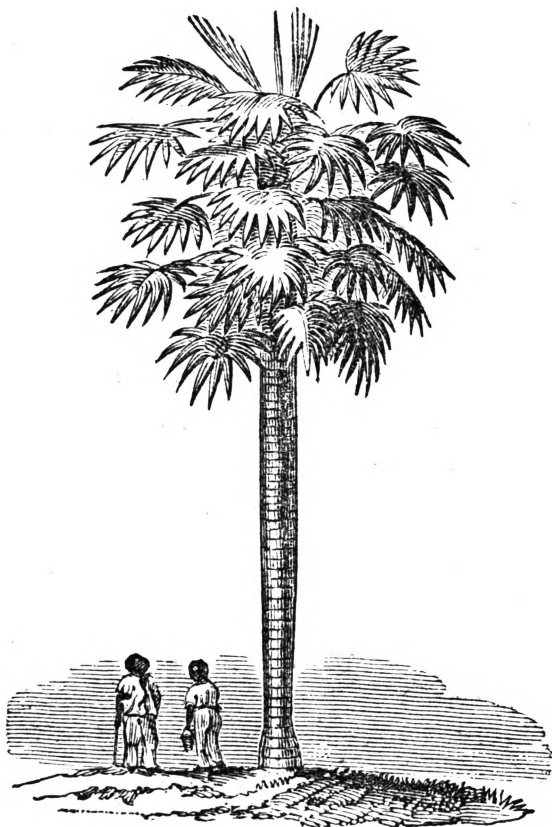
While at Savannah I made a delightful excursion, in company with Dr. Le Conte, Captain Alexander, and Mr. Hodgson, to Skiddaway, one of the sea-islands, which may be said to form part of a great delta on the coast of Georgia, between the mouths of the Savannah and Ogeechee rivers. This alluvial region consists of a wide extent of low land elevated a few feet above high water, and intersected by numerous creeks and swamps. I gave some account in my former tour of my visit to Heyner's Bridge,* where the bones of the extinct mastodon and mylodon were found. Skiddaway is five or six miles farther from Savannah in the same southeast direction, and is classical ground for the geologist, for, on its northwest end, where there is a low cliff from two to six feet in height, no less than three skeletons of the huge *Megatherium* have been dug up, besides the remains of the *Mylodon*, *Elephas primigenius*, *Mastodon giganteus*, and a species of the ox tribe. The bones occur in a dark peaty soil or marsh mud, above which is a stratum, three or four feet thick, of sand, charged with oxide of iron, and below them and beneath the sea level, occurs sand containing a great number of marine fossil shells, all

* Travels in North America, vol. i. p. 163.

belonging to species which still inhabit the neighboring coast, showing how modern is the date, geologically speaking, of the extinct animals, since they were evidently posterior to the existing molluscous fauna of the sea.

The scenery of the low flat island of Skiddaway had more of a tropical aspect than any which I had yet seen in the United States. Several distinct species of palmetto, or fan palm, were common, as also the tree, or cabbage palm, a noble species, which

Fig. 6.



Chamærops Palmetto.

Cabbage Palm, or Tall Palmetto, Skiddaway Island, Georgia.

I had never seen before. In some of the cotton-fields many individuals were growing singly, having been planted at regular intervals to the exclusion of all other trees, and were from twenty-five to forty feet in height. The trunk bulges at the base, above which it is usually about one foot in diameter; and of the same size throughout, or rather increasing upward. At the top the

leaves spread out on all sides, as in other fan palms. Those which have fallen off do not leave separate scars on the trunk, but rings are formed by their bases. The cabbage of the young palm is used as a vegetable, but when this part is cut off, the plant is killed. I saw sections of the wood, and the structure of it resembles that of true palms. It is said by Elliott to be invaluable for submarine construction, as it is never attacked by the ship-worm, or *Teredo navalis*. This tree flourishes in a clay soil, and is of slow growth. It requires the sea air, and has not suffered from the late severe frost. We saw some plants twelve years old, and others which in fifty years had attained a height of about twenty or twenty-five feet. Such as have reached forty feet are supposed to be at least a century old. In those fields where the negroes were at work, and where the cotton plants were still standing five or six feet high, with no other trees except these palms, I could well imagine myself in the tropics. We put up many birds, the names of which were all familiar to Dr. Le Conte; among others the Virginian partridge (*Ortyx virginiana*), the rook (*Corvus americanus*), nearly resembling our European species, not only in plumage but in its note, the marsh hawk (*Circus cyaneus*), the snowy heron (*Ardea candidissima*), the bald-headed eagle, the summer duck, and meadow lark. We also heard the mocking-bird in the woods. As we were entering a barn, a screech-owl (*Bubo asio*, Lin.) flew out nearly in the face of one of the party. When we came to a tree partially barked by lightning, I asked Dr. Le Conte whether he adopted the theory that this decortication was caused by steam; the sap or juices of the tree, immediately under the bark, being suddenly converted by the heat of the electric fluid into vapor. He said that lightning was so common here, that he had had opportunities of verifying this hypothesis by observing that the steam, or small cloud of smoke, as it is commonly called, which is produced when a tree is struck, disappears immediately, as if by condensation.

There are decided proofs on the coast of Georgia of changes in the level of the land, in times geologically modern, and I shall afterward mention the stumps of trees below the sea-level, at the

mouth of the Altamaha river, in proof of a former subsidence ; but a stranger is in great danger of being deceived, because the common pine, called the loblolly (*Pinus taeda*), has tap-roots as large as the trunk, which run down vertically for seven or eight feet, without any sensible diminution in size. At the depth of about ten feet below the surface this root sends off numerous smaller ones horizontally, and when the sea has advanced and swept away the enveloping sand from such tap-roots, they remain erect, and become covered with barnacles and oysters. When so circumstanced, they have exactly the appearance of a submarine forest, caused by the sinking down of land. A geologist, who is on his guard against being deceived by the undermining of a cliff, and the consequent sliding down and submergence of land covered with trees which remain vertical, may yet be misled by finding these large tap-roots standing upright under water.

As the alligators are very abundant in the swamps near the mouth of the Savannah, I heard much of their habits, and was surprised to learn that pebbles are often met with in their stomachs, which they have swallowed to aid their digestion, as birds eat sand and gravel to assist the mechanical action of the gizzard. The peculiar conformation of the alligator's stomach confirms this view. On the site of some of the old Indian villages whole baskets full of flint arrow-heads have been picked up, and some of these, much worn and rubbed, have been taken out of the stomachs of these reptiles.

The extraordinary tenacity of life manifested by the alligator when seriously mutilated, led Dr. Le Conte to make a series of experiments, with a view of throwing light on the philosophy of the nervous system in man as compared to the lower animals. A young alligator was decapitated at the point where the neck or atlas articulates with the occiput. Not more than two ounces of blood flowed from the wound. The jaws of the detached head still snapped at any thing which touched the tongue or lining membrane of the mouth. After the convulsions produced by decapitation had subsided, the trunk of the animal remained in a state of torpor resembling profound sleep. But when pricked or pinched on the sides, the creature would scratch the spot, some-

times with the fore, and sometimes with the hind foot, according to the situation of the injury inflicted. These movements of the limbs were promptly and determinately performed, and were always confined to the members on the side of the irritating cause. If touched below the posterior extremity on the thick portion of the tail, he would slowly and deliberately draw up the hind foot, and scratch the part, and would use considerable force in pushing aside the offending object. These experiments were repeatedly performed, and always with the same results, appearing to prove that the creature could not have been totally devoid of sensation and consciousness. Dr. Le Conte concludes, therefore, that, although in man and the more highly organized vertebrata, volition is seated in the brain, or encephalus, this function in reptiles must extend over the whole spinal cord, or cerebro-spinal axis. Some, however, may contend that the motions observed are merely spasmodic and involuntary, like sneezing, the necessary results of certain physical conditions of the nervous system, and not guided in any way by the mind. If so, it can not be denied that they have all the appearance of being produced with a perfect knowledge of the end in view, and to be directed peculiarly to that end; so that, if we embrace the hypothesis that they supervene simply on the application of stimuli, without any sensations being carried to the brain, and without any co-operation of the mind, must we not in that case suspect that a large proportion of the actions of quadrupeds, usually attributed to the control of the will, may in like manner be performed without consciousness or volition ?*

When we got back to Savannah, I found my wife just returned from Bonaventure, about four miles distant, where she had accompanied a lady on a drive to see a magnificent grove of live oaks, the branches of which, arching over head, form a splendid aisle. It was formerly the fashion of the planters of the Carolinas and Georgia, to make summer tours in the northern states, or stay in watering-places there; but they are now in the habit of visiting the upland region of the Alleghanies in their

* See a paper by J. Le Conte, New York Journal of Medicine, Nov. 1845, p. 335.

own states, and speak enthusiastically of the beauty and grandeur of the scenery. Their intercourse with the north was useful in giving them new ideas, and showing them what rapid progress civilization is making there ; but they have been deterred from traveling there of late, owing, as they tell me, to the conduct of the abolitionists toward the negro servants whom they take with them,

Sometimes a writ of Habeas Corpus is served, and the colored servant is carried before a magistrate, on the plea that he or she are detained against their will. Even where they have firmly declared their wish to return to their owners, they have been often unsettled in their ideas, and less contented afterward with their condition.

CHAPTER XVIII.

Savannah to Darien.—Anti-Slavery Meetings discussed.—War with England.—Landing at Darien.—Crackers.—Scenery on Altamaha River.—Negro Boatmen singing.—Marsh Blackbird in Rice Grounds.—Hospitality of Southern Planters.—New Clearing and Natural Rotation of Trees.—Birds.—Shrike and Kingfisher.—Excursion to St. Simon's Island.—Butler's Island and Negroes.—Stumps of Trees in Salt Marshes proving Subsidence of Land.—Alligator seen.—Their Nests and Habits.—Their Fear of Porpoises.—Indian Shell Mound on St. Simon's Island.—Date-palm, Orange, Lemon, and Olive Trees.—Hurricanes.—Visit to outermost Barrier Island.—Sea Shells on Beach.—Negro Maid-Servants.

Dec. 31, 1845.—ON the last day of the year we sailed in a steamer from Savannah to Darien, in Georgia, about 125 miles farther south, skirting a low coast, and having the Gulf-stream about sixty miles to the eastward of us. Our fellow-passengers consisted of planters, with several mercantile men from northern states. The latter usually maintained a prudent reserve on politics; yet one or two warm discussions arose, in which not only the chances of war with England, and the policy of the party now in power, but the more exciting topic of slavery, and the doings at a recent anti-slavery meeting in Exeter Hall, London, were spoken of. I was told by a fellow-passenger, that some of the Georgian planters who are declaiming most vehemently against Mr. Polk for so nearly drawing them into a war with Great Britain, were his warmest supporters in the late presidential election. "They are justly punished," he said, "for voting against their principles. Although not belonging to the democratic party, they went for Polk in order that Texas might be annexed; and now that they have carried that point, their imaginations are haunted with the image of the cotton trade paralyzed, an English fleet ravaging the coast and carrying away their negroes, as in the last war, and, worst of all, the abolitionists of the north looking on with the utmost complacency at their ruin." One of the most moderate of the planters, with whom I conversed apart, told me that the official avowal of the English

government, that one of the reasons for acknowledging the independence of Texas was its tendency to promote the abolition of slavery, had done much to alienate the planters, and increase the anti-English feeling in the south. He also observed, that any thing like foreign dictation or intermeddling excited a spirit of resistance, and asked whether I thought the emancipation of the West Indian slaves would have been accelerated by meetings in the United States or Germany to promote that measure. He then adverted to the letters lately published by Mr. Colman, on English agriculture, in which the poverty, ignorance, and stationary condition of the British peasantry are painted in most vivid colors. He also cited Lord Ashley's speeches on the miseries endured underground by women and boys in coal-mines, and said that the parliamentary reports on the wretched state of the factory children in England had been largely extracted from in their papers, to show that the orators of Exeter Hall might find abuses enough at home to remedy, without declaiming against the wrongs of their negroes, whose true condition and prospects of improvement were points on which they displayed consummate ignorance. Finding me not disposed to controvert him, he added, in a milder tone, that, for his part, he thought the southern planters owed a debt of gratitude to England for setting the example to American philanthropists of making pecuniary compensation to those whose slaves they set free.

When I had leisure to think over this conversation, and the hint conveyed to my countrymen, how they might best devote their energies toward securing the progress of the laboring classes at home, it occurred to me that some of Channing's discourses against slavery might be useful to a minister who should have the patriotism to revive the measure for educating the factory children, proposed in 1843 by Sir James Graham, and lost in consequence of the disputes between the Church and the Dissenters. It would be easy to substitute employer for owner, and laborer for slave, and the greater part of the eloquent appeal of the New England orator would become appropriate :—

“ Mutato nomine de te
Fabula narratur.”

“Every man,” says Channing, in his argument against slavery, “has a right to exercise and invigorate his intellect, and whoever obstructs or quenches the intellectual life in another, inflicts a grievous and irreparable wrong.”* “Let not the sacredness of individual man be forgotten in the feverish pursuit of property. It is more important that the individual should respect himself, and be respected by others, than that national wealth, which is not the end of society, should be accumulated.”† “He (the slave) must form no plans for bettering his condition, whatever be his capacities ; however equal to great improvements of his lot, he is chained for life to the same unwearied toil. That he should yield himself to intemperance we must expect, unused to any pleasures but those of sense.” “We are told,” says the same author, “that they are taught religion, that they hear the voice of Christ, and read in his cross the unutterable worth of their spiritual nature ; but the greater part are still buried in heathen ignorance.”‡

“They may be free from care, and sure of future support, but their future is not brightened by images of joy ; it stretches before them sterile and monotonous, sending no cheering whisper of a better lot.”§

An inhabitant of one of the six New England States, or of New York, where, in a population of five millions of souls, one teacher is now supplied for every thirty children, may be entitled to address this language to the southern slave owner ; but does the state of the working classes, whether in Great Britain or the West Indies, authorize us to assume the same tone ?

A merchant from New York told me, that in “The Union,” a semi-official journal published at Washington, and supposed to represent the views of the cabinet, an article had just appeared, headed, “The whole of Oregon or none,” which for the first time gave him some uneasiness. “A war,” he said, might seem too absurd to be possible ; but a few months ago he had thought the election of Mr. Polk equally impossible, and the President might

* Channing’s Works, vol. ii. p. 35.

† Vol. ii. p. 94.

‡ Vol. ii. p. 44.

§ Vol. ii. p. 89.

go on tampering with the popular passions, till he could not control them. The presidential election would have ended differently," he affirmed, "but for 5000 fraudulent votes given in the city of New York." I asked if he thought the people would enter with spirit into a war for which they had made no preparation. "It would depend," he said, "on the policy of England. If she made predatory and bucaniering descents upon the coast, as in the last war, or attacked some of the great eastern sea-ports, she might stir up the whole population to a state of frenzied energy, and cause them to make great sacrifices; but if she put forth the whole strength of her fleets against the commerce of the Union, and stood on the defensive in Canada, so as to protract the campaign, and cripple their revenues derived from customs, the people, remembering that when the war commenced, the cabinet of St. James's and the English press were pacific and willing to come to a compromise about Oregon, would become impatient of direct taxation, and turn against the party which had plunged them into hostilities."

Dec. 31.—At the end of a long day's sail, our steamer landed us safely at the village of Darien, on the sandy banks of the river Altamaha (which is pronounced Altamaha, the a's broad). The sky was clear, and the air mild, but refreshing, and we were told that we must walk to the inn, not far off. Five negroes were very officious in offering their services, and four of them at length adjusted all our packages on their backs. The other, having nothing else to do, assumed the command of the party, having first said to me, "If you not ready, we will hesitate for half an hour." We passed under some of the noblest evergreen oaks I had yet seen, their large picturesque roots spreading on all sides, half out of the loose, sandy soil, and their boughs hung with unusually long weepers of Spanish moss. When I had paid our four porters, the one who had gone first, assuming an air of great importance, "hoped I would remember the pilot." As the inn was almost in sight from the landing, and our course a direct one in a bright moonlight night, and all the men quite familiar with every step of the way, we were not a little diverted at the notion of paying for a guide, but the good-humored coun-

tenance of the pilot made his appeal irresistible. The bed at our humble inn was clean, but next morning we were annoyed by having to sit down to breakfast with a poor white family, to whom the same compliment could not be paid—a man and his wife and four children, belonging to the class called “crackers” in Georgia. The etymology of this word is rather uncertain, some deriving it from the long whips used by the wagoners. They are a class of small proprietors, who seem to acquire slovenly habits from dependence on slaves, of whom they can maintain but few.

The next morning, while we were standing on the river's bank, we were joined by Mr. Hamilton Couper, with whom I had corresponded on geological matters, and whom I have already mentioned as the donor of a splendid collection of fossil remains to the museum at Washington, and, I may add, of other like treasures to that of Philadelphia. He came down the river to meet us in a long canoe, hollowed out of the trunk of a single cypress, and rowed by six negroes, who were singing loudly, and keeping time to the stroke of their oars. He brought us a packet of letters from England, which had been sent to his house, a welcome New Year's gift; and when we had glanced over their contents, we entered the boat and began to ascend the Altamaha.

The river was fringed on both sides with tall canes and with the cypress (*Cupressus disticha*), and many other trees, still leafless, which, being hung with gray moss, gave a somber tone to the scenery at this season, in spite of the green leaves of several species of laurel, myrtle, and magnolia. But wherever there was a break in the fringe of trees, which flourished luxuriantly in the swamps bordering the river, a forest of evergreen pines was seen in the back ground. For many a mile we saw no habitations, and the solitude was profound; but our black oarsmen made the woods echo to their song. One of them taking the lead, first improvised a verse, paying compliments to his master's family, and to a celebrated black beauty of the neighborhood, who was compared to the “red bird.” The other five then joined in chorus, always repeating the same words. Occa-

sionally they struck up a hymn, taught them by the Methodists, in which the most sacred subjects were handled with strange familiarity, and which, though nothing irreverent was meant, sounded oddly to our ears, and, when following a love ditty, almost profane.

Darien is on the left or northern bank of the Altamaha. About fifteen miles above it, on the opposite bank, we came to Hopeton, the residence of Mr. H. Couper, having first passed from the river into a canal, which traversed the low rice fields. Here we put up prodigious flights of the marsh blackbird (*Ajellaius phæniceus*), sometimes called the red-winged starling, because the male has some scarlet feathers in the upper part of his wing. When several thousands of them are in rapid motion at once, they darken the air like a cloud, and then, when the whole of them suddenly turn their wings edgeways, the cloud vanishes, to reappear as instantaneously the next moment. Mr. Couper encourages these birds, as they eat up all the loose grains of rice scattered over the field after the harvest has been gathered in. If these seeds are left, they spring up the year following, producing what is called volunteer rice, always of inferior quality to that which is regularly sown. From the rice grounds we walked up a bank to a level table land, composed of sand, a few yards above the river, and covered with pines and a mixture of scrub oak. Here, in this genial climate, there are some wild flowers in bloom every day of the year. On this higher level, near the slope which faces the rice fields and the river, stands the house of Hopeton, where we spent our time very agreeably for a fortnight. Much has been said in praise of the hospitality of the southern planter, but they alone who have traveled in the southern states, can appreciate the perfect ease and politeness with which a stranger is made to feel himself at home. Horses, carriages, boats, servants, are all at his disposal. Even his little comforts are thought of, and every thing is done as heartily and naturally as if no obligation were conferred. When northerners who are not very rich receive guests in the country, where domestic servants are few and expensive, they are often compelled, if they would insure the comfort of their visitors, to perform me-

nial offices themselves. The sacrifices, therefore, made by the planter, are comparatively small, since he has a well-trained establishment of servants, and his habitual style of living is so free and liberal, that the expense of a few additional inmates in the family is scarcely felt. Still there is a warm and generous openness of character in the southerners, which mere wealth and a retinue of servants cannot give; and they have often a dignity of manner, without stiffness, which is most agreeable.

The landed proprietors here visit each other in the style of English country gentlemen, sometimes dining out with their families and returning at night, or, if the distance be great, remaining to sleep and coming home the next morning. A considerable part of their food is derived from the produce of the land; but, as their houses are usually distant from large towns, they keep large stores of groceries and of clothing, as is the custom in country houses in some parts of Scotland.

Near the house of Hopeton there was a clearing in the forest, exhibiting a fine illustration of that natural rotation of crops, which excites, not without reason, the surprise of every one who sees it for the first time, and the true cause of which is still imperfectly understood. The trees which had been cut down were full-grown pines (*Pinus australis*), of which the surrounding wood consists, and which might have gone on for centuries, one generation after another, if their growth had not been interfered with. But now they are succeeded by a crop of young oaks, and we naturally ask, whence came the acorns, and how were they sown here in such numbers? It seems that the jay (*Garrulus cristatus*) has a propensity to bury acorns and various grains in the ground, forgetting to return and devour them. The rook, also (*Corvus americanus*), does the same, and so do some squirrels and other Rodentia; and they plant them so deep, that they will not shoot unless the air and the sun's rays can penetrate freely into the soil, as when the shade of the pine trees has been entirely removed. It must occasionally happen, that birds or quadrupeds, which might otherwise have returned to feed on the hidden treasure, are killed by some one of their numerous enemies. But as the seeds of pines must be infinitely more

abundant than the acorns, we have still to explain what principle in vegetable life favors the rotation. Liebig adopts De Candolle's theory, as most probable. He supposes that the roots of plants imbibe soluble matter of every kind from the soil, and absorb many substances not adapted for their nutrition, which are subsequently expelled by the roots, and returned to the soil as excrements. Now, as excrements cannot be assimilated by the plant which ejected them, the more of these matters the soil contains, the less fertile must it become for plants of the same species. These exudations, however, may be capable of assimilation by another perfectly different kind or family of plants, which would flourish while taking them up from the soil, and render the soil, in time, again fertile for the first plants. "During a fallow," says Liebig, "the action of the sun and atmosphere, especially if not intercepted by the growth of weeds, causes the decomposition of the excrementitious matters, and converts the soil into humus or vegetable mold, restoring fertility."*

In one part of the pine forest I saw the Liquidambar tree growing vigorously fifty feet high, with a bark resembling cork. The bird of brightest plumage was the one called the red bird, or red cardinal (*Loxia cardinalis*), which has a full, clear, and mellow note, though no variety of song. It frequents bushes in the neighborhood of houses, where it comes to be fed, but will not thrive in captivity. One day, a son of Mr. Couper's brought us a hen cardinal bird and a wild partridge, both taken uninjured in a snare. It was amusing to contrast the extreme fierceness of the cardinal with the mildness and gentleness of the partridge. That insects, birds, and quadrupeds, of the same genera, but of distinct species, discharge similar functions in America and Europe, is well known. My attention was called here to some thorny bushes, on which the shrike or loggerhead (*Lanius ludovicianus*) had impaled small lizards, frogs, and beetles, just as I have seen mice and insects fixed on thorns by our English shrikes. Here, also, the marshes near the river are frequented by the belted kingfisher (*Alcedo alcyon*), resembling

* Liebig's Organic Chemistry, pt. i. ch. 8.

in plumage, though not so brilliant as the English kingfisher, which yet lingers, in spite of persecution, in the reedy islands of the Thames above London. Mr. Couper tells me, that the American bird dives after its prey, like that of Europe, and will often carry a fish, not much smaller than itself, and beat it against the stump of a tree, first on one side, then on the other, till every bone in its body is broken; it can then swallow it, in spite of its size.

A few days after our arrival (January 4, 1846), Mr. Couper took us in a canoe down the river from Hopeton to one of the sea-islands, called St. Simon's, fifteen miles distant, to visit his summer residence, and to give me an opportunity of exploring the geology of the coast and adjoining low country. We saw, on the banks of the river, the *Magnolia glauca*, attaining a height of thirty feet, instead of being only ten feet high, as in the swamps of New England. The gum tree (*Nyssa aquatica*), out of leaf at this season, was conspicuous, from the manner in which the smooth trunk swells out at the base, being partially hollow in the interior, so that it is often used by the negroes for bee-hives. Jays and blue-birds were very abundant, and there were several large hawks' nests on the tops of tall dead trees.

Among the zoological characteristics of the North American rivers, none is more remarkable than the variety of species of shells of the genus *Unio*, or fresh-water mussel, which inhabit them. Every great stream yields some new forms, and Mr. Couper has already discovered in the Altamaha no less than sixteen species before unknown; one of these, *Unio spinosus*, has a singular appearance, being armed with spines, standing out horizontally from the shell, and probably acting as a defense against some enemy.

On our way we landed on Butler's Island, where the banks of the river, as is usual in deltas, are higher than the ground immediately behind them. They are here adorned with orange trees, loaded with golden fruit, and very ornamental. We saw ricks of rice raised on props five feet high, to protect them from the sea, which, during hurricanes, has been known to rise five or

six feet. The negro houses were neat, and whitewashed, all floored with wood, each with an apartment called the hall, two sleeping-rooms, and a loft for the children; but it is evident that on these rice farms, where the negroes associate with scarcely any whites, except the overseer and his family, and have but little intercourse with the slaves of other estates, they must remain far more stationary than where, as in a large part of Georgia, they are about equal in number to the whites, or even form a minority. The negroes, moreover, in the interior, are healthier than those in rice plantations, and multiply faster, although the rice grounds are salubrious to the negroes as compared to the whites. In this lower region the increase of the slaves is rapid, for they are well fed, fitted for a southern climate, and free from care, partly, no doubt, because of their low mental development, and partly because they and their children are secured from want. Such advantages, however, would be of no avail, in rendering them prolific, if they were overworked and harshly treated.

As we approached the sea and the brackish water, the wood bordering the river began first to grow dwarfish, and then, lowering suddenly, to give place entirely to reeds; but still we saw the buried stumps and stools of the cypress and pine continuing to show themselves in every section of the bank, maintaining the upright position in which they originally grew. The occurrence of these in the salt marshes clearly demonstrates that trees once flourished where they would now be immediately killed by the salt water. There must have been a change in the relative level of land and sea, to account for their growth, since, even above the commencement of the brackish water, similar stumps are visible at a lower level than the present high tide, and covered by layers of sedimentary matter, on which tall cypresses and other trees are now standing. From such phenomena we may infer the following sequence of events:—first, an ancient forest was submerged several feet, and the sunk trees were killed by the salt water; they then rotted away down to the water level (a long operation), after which layers of sand were thrown down upon the stumps; and finally, when the surface had been

raised by fluviatile sediment, as in a delta, a new forest grew up over the ruins of the old one.

I have said that the decay of such timber is slow, for I saw cypresses at Hopeton, which had been purposely killed by girdling or cutting away a ring of bark, which stood erect on the borders of the rice grounds after thirty years, and bid fair to last for many a year to come. It does no small credit to the sagacity of Bartram, the botanist, that he should have remarked, when writing in 1792, that the low, flat islands on the coast, as well as the salt marshes and adjoining sandy region, through which so many rivers wind, and which afford so secure a navigation for schooners, boats, and canoes, may be a step in advance gained by the continent on the Atlantic in modern times. "But if so," he adds, "it is still clear that, at a period immediately preceding, the same region of low land stretched still farther out to sea." On the latter subject his words are so much to the point, as to deserve being quoted:—

"It seems evident, even to demonstration, that those salt marshes adjoining the coast of the main, and the reedy and grassy islands and marshes in the rivers, which are now overflowed at every tide, were formerly high swamps of firm land, affording forests of cypress, tupelo, magnolia grandiflora, oak, ash, sweet bay, and other timber trees, the same as are now growing on the river swamps, whose surface is two feet or more above the spring tides that flow at this day. And it is plainly to be seen by every planter along the coast of Carolina, Georgia, and Florida, to the Mississippi, when they bank in these grassy tide marshes for cultivation, that they can not sink their drains above three or four feet below the surface, before they come to strata of cypress stumps and other trees, as close together as they now grow in the swamps."*

When our canoe had proceeded into the brackish water, where the river banks consisted of marsh land covered with a tall reed-like grass, we came close up to an alligator, about nine feet long, basking in the sun. Had the day been warmer, he would not

* W. Bartram's Travels through North and South Carolina, Georgia, &c. London, 1792.

have allowed us to approach so near to him ; for these reptiles are much shyer than formerly, since they have learnt to dread the avenging rifle of the planter, whose stray hogs and sporting dogs they often devour. About ten years ago, Mr. Couper tells us, that he saw 200 of them together in St. Mary's River, in Florida, extremely fearless. The oldest and largest individuals on the Altamaha have been killed, and they are now rarely twelve feet long, and never exceed sixteen and a half feet. As almost all of them have been in their winter retreats ever since the frost of last month, I was glad that we had surprised one in his native haunts, and seen him plunge into the water by the side of our boat. When I first read Bartram's account of alligators more than twenty feet long, and how they attacked his boat and bellowed like bulls, and made a sound like distant thunder, I suspected him of exaggeration ; but all my inquiries here and in Louisiana convinced me that he may be depended upon. His account of the nests which they build in the marshes is perfectly correct. They resemble haycocks, about four feet high, and five feet in diameter at their bases, being constructed with mud, grass, and herbage. First they deposit one layer of eggs on a floor of mortar, and having covered this with a second stratum of mud and herbage eight inches thick, lay another set of eggs upon that, and so on to the top, there being commonly from one hundred to two hundred eggs in a nest. With their tails they then beat down round the nest the dense grass and reeds, five feet high, to prevent the approach of unseen enemies. The female watches her eggs until they are all hatched by the heat of the sun, and then takes her brood under her care, defending them, and providing for their subsistence.* Dr. Luzenberger, of New Orleans, told me that he once packed up one of these nests, with the eggs, in a box for the Museum of St. Petersburg, but was recommended, before he closed it, to see that there was no danger of any of the eggs being hatched on the voyage. On opening one, a young alligator walked out, and was soon after followed by all the rest, about a hundred, which he fed in his house, where they went up and down the stairs, whining and barking

* Bartram, p. 126.

like young puppies. They ate voraciously, yet their growth was so slow, as to confirm him in the common opinion, that individuals which have attained the largest size are of very great age; though whether they live for three centuries, as some pretend, must be decided by future observations.

Mr. Couper told me that, in the summer of 1845, he saw a shoal of porpoises coming up to that part of the Altamaha where the fresh and salt water meet, a space about a mile in length, the favorite fishing ground of the alligators, where there is brackish water, which shifts its place according to the varying strength of the river and the tide. Here were seen about fifty alligators, each with head and neck raised above water, looking down the stream at their enemies, before whom they had fled, terror-stricken, and expecting an attack. The porpoises, no more than a dozen in number, moved on in two ranks, and were evidently complete masters of the field. So powerful, indeed, are they, that they have been known to chase a large alligator to the bank, and, putting their snouts under his belly, toss him ashore.

We landed on the northeast end of St. Simon's Island, at Cannon's Point, where we were gratified by the sight of a curious monument of the Indians, the largest mound of shells left by the aborigines in any one of the sea islands. Here are no less than ten acres of ground elevated in some places ten feet, and on an average over the whole area, five feet above the general level, composed throughout that depth of myriads of cast-away oyster-shells, with some mussels, and here and there a modiola and helix. They who have seen the Monte Testaceo near Rome, know what great results may proceed from insignificant causes, where the cumulative power of time has been at work, so that a hill may be formed out of the broken pottery rejected by the population of a large city. To them it will appear unnecessary to infer, as some antiquaries have done, from the magnitude of these Indian mounds, that they must have been thrown up by the sea. In refutation of such an hypothesis, we have the fact, that flint arrow-heads, stone axes, and fragments of Indian pottery have been detected throughout the mass. The shell-fish heaped up at Cannon's Point, must, from their nature, have been caught at a

distance, on one of the outer islands ; and it is well known that the Indians were in the habit of returning with what they had taken, from their fishing excursions on the coast, to some good hunting ground, such as St. Simon's afforded.

We found Mr. Couper's villa, near the water's edge, shaded by a verandah and by a sago tree. There were also many lemon trees, somewhat injured by the late frost ; but the olives, of which there is a fine grove here, are unharmed, and it is thought they may one day be cultivated with profit in the sea islands. We also admired five date palms, which bear fruit. They were brought from Bussora in Persia, and have not suffered by the cold. The oranges have been much hurt. Some of the trees planted by Oglethorpe's troops in 1742, after flourishing for ninety-three years, were cut off in February, 1835, and others, about a century and a half old, shared the same fate at St. Augustine in Florida. So long a period does it require to ascertain whether the climate of a new country is suitable to a particular species of plant.

The evergreen or live oaks are truly magnificent in this island ; some of them, 73 feet in height, have been found to stretch with their boughs over an area 63 feet in diameter. I measured one which was thirty-five years old, and found the trunk to be just 35 inches in diameter near the base, showing an annual gain of three inches in circumference. Another, growing in a favorable situation, forty-two years old, was nine feet six inches in girth at the height of one and a half foot above the ground.

The island of St. Simon's is so low, that the lower part of it was under water in 1804 and 1824, when hurricanes set in with the wind from the northeast. Nearly the entire surface was submerged in 1756. In that year the sea rose, even as far north as Charleston, to the height of six feet above its ordinary level, and that city might have been destroyed, had the gale lasted in the same direction a few hours longer.

I went with Mr. Couper to Long Island, the outermost barrier of land between St. Simon's and the ocean, four miles long, and about half a mile wide, of recent formation, and consisting of parallel ranges of sand dunes, marking its growth by successive additions. Some of the dunes on this coast have been raised by

the wind to the height of 40 or 50 feet, and inclose evergreen oaks (*Quercus virens*), the upper branches of which alone protrude above the surface. Between the parallel sand dunes were salt marshes, where we collected the plant-eating shell called *Auricula bidentata*, of a genus peculiar to such littoral situations. On the sea-beach, we gathered no less than twenty-nine species of marine shells, and they were of peculiar interest to me, because they agreed specifically with those which I had obtained from the strata lying immediately below the megatherium and other fossils in Skiddaway Island, and which occur below similar remains presently to be mentioned near Hopeton. In some places we found bivalves only of the genera *Pholas*, *Lutraria*, *Solecurtus*, *Petricola*, *Tellina*, *Donax*, *Venus*, *Cardium*, *Arca*, *Pinna*, and *Mytilus*, just as in the fossil group. On other parts of the beach there was a mixture of univalves, *Oliva*, *Pyrula* (Fulgur), *Buccinum*, &c. Besides these shells we found, scattered over the sands, a scutella and cases of the king crab (*Limulus*), and fragments of turtles, with bones of porpoises.

Every geologist who has examined strata consisting of alternations of sandstone and shale, must occasionally have observed angular or rounded pieces of the shale imbedded in the sandstones, a phenomenon which seems at first sight very singular, because we might almost say that the formation is in part made up of its own ruins, and not derived wholly from pre-existing rocks. On the exposed coast of this "frontier island," I saw a complete explanation of the manner in which this structure originates. Deposits of sand and beds of clay are formed alternately at different seasons, and at the time of our visit the sea was making great inroads on an argillaceous mass, washing out pieces of the half-consolidated clay, and strewing them over the sands, some flat, others angular, or rolled into various sized pebbles. These, when carried out into the adjoining parts of the sea, must be often included in the sand, which may be eventually converted into sandstone.

Among the numerous sea birds, I particularly admired one called the sheer-water, with its shrill clear note, and most rapid flight.

On my return to Cannon's Point, I found, in the well-stored

library of Mr. Couper, Audubon's Birds, Michaud's Forest Trees, and other costly works on natural history ; also Catherwood's Antiquities of Central America, folio edition, in which the superior effect of the larger drawings of the monuments of Indian architecture struck me much, as compared to the reduced ones, given in Stephens's Central America, by the same artist, although these also are very descriptive.

During our excursion to the sea-beach, my wife had been visited by some ladies well acquainted with relations of her own, who formerly resided in this part of Georgia, and who, when they returned to England, had taken back with them an old negress. One of the colored maid-servants of the ladies, feeling no doubt that Mrs. W——, although she had recrossed the Atlantic, would be as much interested as ever in her history, sent innumerable messages, beginning with, "Pray tell her that Mrs. A. has given me and my children to Mrs. B." They were all very curious to know about their former friend, Delia, the black maid, and how she had got on in England. On being told that she had been shocked at seeing so many beggars, and had scolded them for not working, they laughed heartily, saying it was so like her to scold ; but they also expressed astonishment at the idea of a white mendicant, there being none, so far as they knew, white or colored, in Georgia. One of the ladies explained the term "beggar" to signify in England, a "mean white person ;" and said to an attendant who had once accompanied her to the north, "Do you not remember some *mean white* men, who asked me for money ?" Talking over this story in Alabama, I was told that mendicity is not so entirely unknown in the south ; that a superannuated negress, having a love of rambling, and wishing to live by begging, asked her master to set her free, "for when I beg, every one asks me why I do not go to my owner." "What will you do in winter," said he, "when you can not travel about ?" "I will come back to you then," she replied, "and you will take care of me in the cold weather."

The sea islands produce the finest cotton, and we saw many women employed in separating the cotton from the seeds with their fingers, a neat and clean occupation.

CHAPTER XIX.

Rivers made turbid by the Clearing of Forests.—Land rising in successive Terraces.—Origin of these.—Bones of extinct Quadrupeds in Lower Terrace.—Associated Marine Shells.—Digging of Brunswick Canal.—Extinction of *Megatherium* and its Contemporaries.—Dying out of rare Species.—*Gordonia Pubescens*.—Life of Southern Planters.—Negroes on a Rice Plantation.—Black Children.—Separate Negro Houses.—Work exacted.—Hospital for Negroes.—Food and Dress.—Black Driver.—Prevention of Crimes.—African Tom.—Progress of Negroes in Civilization.—Conversions to Christianity.—Episcopalian, Baptist, and Methodist Missionaries.—Amalgamation and Mixture of Races.

WE returned from St. Simon's to Hopeton, much pleased with our expedition. As our canoe was scudding through the clear waters of the Altamaha, Mr. Couper mentioned a fact which shows the effect of herbage, shrubs, and trees in protecting the soil from the wasting action of rain and torrents. Formerly, even during floods, the Altamaha was transparent, or only stained of a darker color by decayed vegetable matter, like some streams in Europe which flow out of peat mosses. So late as 1841, a resident here could distinguish on which of the two branches of the Altamaha, the Oconee or Ocmulgee, a freshet had occurred, for the lands in the upper country, drained by one of these (the Oconee) had already been partially cleared and cultivated, so that that tributary sent down a copious supply of red mud, while the other (the Ocmulgee) remained clear, though swollen. But no sooner had the Indians been driven out, and the woods of their old hunting-grounds begun to give way before the ax of the new settler, than the Ocmulgee also became turbid. I shall have occasion, in the sequel, to recur to this subject, when speaking of some recently-formed ravines of great depth and width in the red mud of the upland country near Milledgeville in Georgia.

The low region bordering the Atlantic, comprising the sea-islands, such as St. Simon's, and the flat or nearly level plains

of the main land immediately adjoining, has an average height of from ten to twenty feet, although there are a few places where it reaches forty feet, above the sea. It extends twenty miles inland, and consists of sand and clay of very modern formation, as shown by the included marine shells, which are like those of Skiddaway, before mentioned,* all identical with living species. This superficial deposit, although chiefly marine, contains, in some parts, beds of fresh-water origin, in which the bones of extinct mammalia occur. The whole group would be called by geologists fluvio-marine, and is of small depth, resting immediately on Eocene, or lower tertiary strata, as I ascertained by examining the shells brought up from several wells. Going inland twenty miles, we come to the termination of this lower terrace, and ascend abruptly to an upper platform, seventy feet above the lower one, the strata composing which belong to the Eocene period. This upper terrace also runs back about twenty miles to the abrupt termination of a third table-land, which is also about seventy feet higher, and consists of Eocene strata, by the denudation of which all these terraces and escarpments (or ancient sea-cliffs) have been formed. Bartram has, with his usual accuracy, alluded to these steps, or succession of terraces, as an important geographical feature of the country, each of them being marked by its own botanical characters, the prevailing forest-trees, as well as the smaller plants, being different in each.

To return to the first platform, or lowest land, from ten to forty feet above the level of the sea, it consists of a modern deposit, which extends 400 miles northward to the Neuse in North Carolina, and probably farther, in the same direction, along the Atlantic border. How far it stretches southward, I am not informed. I conceive it to have been accumulated in a sea, into which many rivers poured during a gradual subsidence of the land, and that the strata, whether fresh-water or marine, formed during the sinking of the bottom of the sea, have been since brought up again to their present elevation. Throughout this low, flat region, the remains of extinct quadrupeds are occasionally met with, and the deposit appears to be very analogous to

* Ante, p. 234.

the great Pampean formation on the borders of the Atlantic in South America, as described by Mr. Darwin. Here and in the Pampas the skeletons of many quadrupeds of the same genera, such as the *Megatherium*, *Megalonix*, *Myiodon*, *Mastodon*, and *Equus* occur. In both cases it has been proved that the mammalia, all of which differ specifically, and most of them generically, from those now living, flourished, nevertheless, at a time when the Atlantic was inhabited by the existing species of mollusca, and when the climate, therefore, of the ocean at least, could not have varied materially from that now prevailing in these latitudes.

Through part of the region occupied by the modern deposits above mentioned, a canal was cut in 1838–39, nine miles in length, called the Brunswick Canal, to unite the navigation of the Altamaha and Turtle rivers; a rash undertaking of some speculators from the northern states, which, had the work been completed, could not have repaid the outlay. About 200,000*l.* (900,000 dollars) were expended, a sum which might have gone far toward obtaining geological surveys of many of the southern states, whereas the only good result was the discovery of some valuable fossil remains; and even these fruits of the enterprise would never have been realized, but for the accidental presence, energy, and scientific knowledge of Mr. Hamilton Couper. Part of the skeleton of a megatherium, dug out in cutting the canal, was so near the surface, that it was penetrated by the roots of a pine-tree. It occurred in clay, apparently a fresh-water deposit, and underneath it were beds of sand, with marine shells of recent species. It was also covered with sand, probably marine, but without shells. So many parts of the same skeleton were found in juxtaposition as to suggest the idea that a whole carcass had been floated by the river to the spot, and even where the bones were slightly scattered they were not injured by being rolled. The remains of other quadrupeds associated with this gigantic sloth, consisted of myiodon, mastodon, elephant, equus, and bos, besides a fossil, to which Mr. Owen has given the name of *Harlanus americanus*, a new genus, intermediate between *Lophiodon* and *Toxodon*. It had been supposed that the hippopotamus and

sus were among this assemblage of fossil genera : but this was a mistake ; nor have either of these genera been as yet met with, fossil or recent, in any part of America, although the swine introduced by man, have multiplied so fast. The horse (*Equus curvidens*) was a species having teeth in the upper jaw more curved than any living horse, ass, zebra, or quagga ; and it is singular that, although there was no wild representative of the horse tribe on the American continent, north or south, when discovered by the Europeans, yet two other fossil horses were found by Mr. Nuttall on the banks of the Neuse, fifteen miles below Newbern, in North Carolina.* The shells and bones of a large extinct species of tortoise were also found to accompany the above-mentioned fossil quadrupeds of Georgia ; and I myself picked up many fragments of this Chelonian strewed over the banks of earth cast up from the Brunswick Canal.

In another part of the excavations made in digging the canal, the ribs and vertebræ of a whale much rolled, and with barnacles attached to them, were discovered belonging to the subjacent marine formation. In this sand the shells, as before stated, are of recent species, and Mr. Hamilton Couper has collected no less than forty-five distinct species exclusive of Echinodermis.

In what manner, then, has the destruction of these quadrupeds, once so widely spread over the American continent, been brought about ? That they were exterminated by the arrows of the Indian hunter, is the first idea presented to the mind of almost every naturalist. But the investigations of Lund and Clausen in the limestone caves of Brazil have established the fact, that with the large mammalia there were associated a great many smaller quadrupeds, some of them as diminutive as field mice, which have all died out together, while the land shells, once their contemporaries, still continue to exist in the same countries. We must look, therefore, to causes more general and powerful than the intervention of man, to account for the disappearance of the ancient fauna, an event the more remarkable, as many of the

* Mr. Conrad intrusted me with Mr. Nuttall's collection, and Mr. Owen has found among them the three species of Equidæ here alluded to, *Equus curvidens*, *E. plicidens*, and a third species of the size of *E. asinus*.

species had a very wide range, and must therefore have been capable of accommodating themselves to considerable variations of temperature. The same species of megatherium, for example, ranged from Patagonia and the river Plata in South America, between latitudes 31° and 50° south, to corresponding latitudes of the northern continent, and was also an inhabitant of the intermediate country of Brazil, in the caves of which its fossil remains are met with. The extinct elephant also of Georgia (*Elephas primigenius*) has been traced in a fossil state northward from the Altamaha to the Polar regions, and then southwestward through Siberia to the south of Europe.

As to the exterminating causes, I agree with Mr. Darwin, that it is the height of presumption for any geologist to be astonished that he can not render an account of them. No naturalist can pretend to be so well acquainted with all the circumstances on which the continuance upon the earth of any living species depends, as to be entitled to wonder if it should diminish rapidly in number or geographical range. But if his speculations should embrace a period in which considerable changes in physical geography are known to have occurred, as is the case in North and South America since the megatherium flourished, how much more difficult would it be to appreciate all the effects of local modifications of climate, and changes in the stations of contemporary animals and plants, on all which, and many other conditions, the permanence of a species must depend. Until we understand the physiological constitutions of organic beings so well that we can explain why an epidemic or contagious disease may rage for months or years, and cut off a large proportion of the living individuals of one species while another is spared, how can we hope to explain why, in the great struggle for existence, some species are multiplying, while others are decreasing in number? "If," says Darwin, "two species of the same genus, and of closely allied habits, people the same district, and we can not say why one of them is rare and the other common, what right have we to wonder if the rarer of the two should cease to exist altogether?"

In illustration of this principle, I may refer to two beautiful evergreens flourishing in this part of Georgia, species of *Gordonia*

(or *Franklinia* of Bartram), a plant allied to the camellia. One of these I saw every where in the swamps near the Altamaha, where it is called the loblolly bay (*Gordonia lasianthus*), forty feet high, and even higher, with dark green leaves, and covered, I am told, in the flowering season, with a profusion of milk-white, fragrant blossoms. This plant has a wide range in the southern states, whereas the other, *G. pubescens*, often seen in greenhouses in England, about thirty feet high, is confined, as I am informed by Mr. Couper, to a very limited area, twenty miles in its greatest length, the same region where Bartram first discovered it, seventy years ago, near Barrington Ferry, on the Altamaha.* In no other spot in the whole continent of America has it ever been detected. If we were told that one of these two evergreens was destined in the next 2000 or 3000 years to become extinct, how could we conjecture which of them would endure the longest? We ought to know first whether the area occupied by the one has been diminishing, and that of the other increasing, and then which of the two plants has been on the advance. But even then we should require to foresee a countless number of other circumstances in the animate and inanimate world affecting the two species, before we could make a probable guess as to their comparative durability. A single frost more severe than that before alluded to, which cut off the orange-trees in Florida after they had lasted a century and a half, might baffle all our calculations; or the increase of some foe, a minute parasitic insect perhaps, might entirely alter the conditions on which the existence of these or any other trees, shrubs, or quadrupeds depend.

During a fortnight's stay at Hopeton, we had an opportunity of seeing how the planters live in the south, and the condition and prospects of the negroes on a well-managed estate. The relation of the slaves to their owners resembles nothing in the northern states. There is an hereditary regard and often attachment on both sides, more like that formerly existing between lords and their retainers in the old feudal times of Europe, than to any thing now to be found in America. The slaves identify

* Bartram, pp. 159, 465.

themselves with the master, and their sense of their own importance rises with his success in life. But the responsibility of the owners is felt to be great, and to manage a plantation with profit is no easy task ; so much judgment is required, and such a mixture of firmness, forbearance, and kindness. The evils of the system of slavery are said to be exhibited in their worst light when new settlers come from the free states ; northern men, who are full of activity, and who strive to make a rapid fortune, willing to risk their own lives in an unhealthy climate, and who can not make allowance for the repugnance to continuous labor of the negro race, or the diminished motive for exertion of the slave. To one who arrives in Georgia direct from Europe, with a vivid impression on his mind of the state of the peasantry there in many populous regions, their ignorance, intemperance, and improvidence, the difficulty of obtaining subsistence, and the small chance they have of bettering their lot, the condition of the black laborers on such a property as Hopeton, will afford but small ground for lamentation or despondency. I had many opportunities, while here, of talking with the slaves alone, or seeing them at work. I may be told that this was a favorable specimen of a well-managed estate ; if so, I may at least affirm that mere chance led me to pay this visit, that is to say, scientific objects wholly unconnected with the "domestic institutions" of the south, or the character of the owner in relation to his slaves ; and I may say the same in regard to every other locality or proprietor visited by me in the course of this tour. I can but relate what passed under my own eyes, or what I learnt from good authority, concealing nothing.

There are 500 negroes on the Hopeton estate, a great many of whom are children, and some old and superannuated. The latter class, who would be supported in a poor-house in England, enjoy here, to the end of their days, the society of their neighbors and kinsfolk, and live at large in separate houses assigned to them. The children have no regular work to do till they are ten or twelve years old. We see that some of them, at this season, are set to pick up dead leaves from the paths, others to attend the babies. When the mothers are at work, the young

children are looked after by an old negress, called Mom Diana. Although very ugly as babies, they have such bright, happy faces when three or four years old, and from that age to ten or twelve have such frank and confiding manners, as to be very engaging. Whenever we met them, they held out their hands to us to shake, and when my wife caressed them, she was often asked by some of the ladies, whether she would not like to bring up one of the girls to love her, and wait upon her. The parents indulge their own fancies in naming their children, and display a singular taste ; for one is called January, another April, a third Monday, and a fourth Hard Times. The fisherman on the estate rejoices in the appellation of "Old Bacchus." Quash is the name of the favorite preacher, and Bulally the African name of another negro.

The out-door laborers have separate houses provided for them ; even the domestic servants, except a few who are nurses to the white children, live apart from the great house—an arrangement not always convenient for the masters, as there is no one to answer a bell after a certain hour. But if we place ourselves in the condition of the majority of the population, that of servants, we see at once how many advantages we should enjoy over the white race in the same rank of life in Europe. In the first place, all can marry ; and if a mistress should lay on any young woman here the injunction so common in English newspaper advertisements for a maid of all work, "no followers allowed," it would be considered an extraordinary act of tyranny. The laborers begin work at six o'clock in the morning, have an hour's rest at nine for breakfast, and many have finished their assigned task by two o'clock, all of them by three o'clock. In summer they divide their work differently, going to bed in the middle of the day, then rising to finish their task, and afterward spending a great part of the night in chatting, merry-making, preaching, and psalm-singing. At Christmas they claim a week's holidays, when they hold a kind of Saturnalia, and the owners can get no work done. Although there is scarcely any drinking, the master rejoices when this season is well over without mischief. The negro houses are as neat as the greater part of the cottages

in Scotland (no flattering compliment it must be confessed), are provided always with a back door, and a hall, as they call it, in which is a chest, a table, two or three chairs, and a few shelves for crockery. On the door of the sleeping apartment they keep a large wooden padlock, to guard their valuables from their neighbors when they are at work in the field, for there is much pilfering among them. A little yard is often attached, in which are seen their chickens, and usually a yelping cur, kept for their amusement.

The winter, when the whites enjoy the best health, is the trying season for the negroes, who are rarely ill in the rice-grounds in summer, which are so fatal to the whites, that when the planters who have retreated to the sea-islands revisit their estates once a fortnight, they dare not sleep at home. Such is the indifference of the negroes to heat, that they are often found sleeping with their faces upward in a broiling sun, instead of lying under the shade of a tree hard by. We visited the hospital at Hopeton, which consists of three separate wards, all perfectly clean and well-ventilated. One is for men, another for women, and a third for lying-in women. The latter are always allowed a month's rest after their confinement, an advantage rarely enjoyed by hard-working English peasants. Although they are better looked after and kept more quiet, on these occasions, in the hospital, the planters are usually baffled; for the women prefer their own houses, where they can gossip with their friends without restraint, and they usually contrive to be taken by surprise at home.

The negro mothers are often so ignorant or indolent, that they can not be trusted to keep awake and administer medicine to their own children; so that the mistress has often to sit up all night with a sick negro child. In submitting to this, they are actuated by mixed motives—a feeling of kindness, and a fear of losing the services of the slave; but these attentions greatly attach the negroes to their owners. In general, they refuse to take medicine from any other hands but those of their master or mistress. The laborers are allowed Indian meal, rice, and milk, and occasionally pork and soup. As their rations are more than

they can eat, they either return part of it to the overseer, who makes them an allowance of money for it at the end of the week, or they keep it to feed their fowls, which they usually sell, as well as their eggs, for cash, to buy molasses, tobacco, and other luxuries. When disposed to exert themselves, they get through the day's task in five hours, and then amuse themselves in fishing, and sell the fish they take; or some of them employ their spare time in making canoes out of large cypress trees, leave being readily granted them to remove such timber, as it aids the landowner to clear the swamps. They sell the canoes for about four dollars, for their own profit.

If the mistress pays a visit to Savannah, the nearest town, she is overwhelmed with commissions, so many of the slaves wishing to lay out their small gains in various indulgences, especially articles of dress, of which they are passionately fond. The stuff must be of the finest quality, and many instructions are given as to the precise color or fashionable shade. White muslin, with figured patterns, is the rage just now.

One day, when walking alone, I came upon a "gang" of negroes, who were digging a trench. They were superintended by a black "driver," who held a whip in his hand. Some of the laborers were using spades, others cutting away the roots and stumps of trees which they had encountered in the line of the ditch. Their mode of proceeding in their task was somewhat leisurely, and eight hours a day of this work are exacted, though they can accomplish the same in five hours, if they undertake it by the task. The digging of a given number of feet in length, breadth, and depth is, in this case, assigned to each ditcher, and a deduction made when they fall in with a stump or root. The names of gangs and drivers are odious, and the sight of the whip was painful to me as a mark of degradation, reminding me that the lower orders of slaves are kept to their work by mere bodily fear, and that their treatment must depend on the individual character of the owner or overseer. That the whip is rarely used, and often held for weeks over them, merely *in terrorem*, is, I have no doubt, true on all well governed estates; and it is not that formidable weapon which I have seen exhibited as formerly

in use in the West Indies. It is a thong of leather, half an inch wide and a quarter of an inch thick. No ordinary driver is allowed to give more than six lashes for any offense, the head driver twelve, and the overseer twenty-four. When an estate is under superior management, the system is remarkably effective in preventing crime. The most severe punishment required in the last forty years, for a body of 500 negroes at Hopeton, was for the theft of one negro from another. In that period there has been no criminal act of the highest grade, for which a delinquent could be committed to the penitentiary in Georgia, and there have been only six cases of assault and battery. As a race, the negroes are mild and forgiving, and by no means so prone to indulge in drinking as the white man or the Indian. There were more serious quarrels, and more broken heads, among the Irish in a few years, when they came to dig the Brunswick Canal, than had been known among the negroes in all the surrounding plantations for half a century. The murder of a husband by a black woman, whom he had beaten violently, is the greatest crime remembered in this part of Georgia for a great length of time.

Under the white overseer, the principal charge here is given to "Old Tom," the head driver, a man of superior intelligence and higher cast of feature. He was the son of a prince of the Foulah tribe, and was taken prisoner, at the age of fourteen, near Timbuctoo. The accounts he gave of what he remembered of the plants and geography of Africa, have been taken down in writing by Mr. Couper, and confirm many of the narratives of modern travelers. He has remained a strict Mahometan, but his numerous progeny of jet-black children and grandchildren, all of them marked by countenances of a more European cast than those of ordinary negroes, have exchanged the Koran for the Bible.

During the last war, when Admiral Cockburn was off this coast with his fleet, he made an offer of freedom to all the slaves belonging to the father of my present host, and a safe convoy to Canada. Nearly all would have gone, had not African Tom, to whom they looked up with great respect, declined the proposal. He told them he had first known what slavery was in the West

Indies, and had made up his mind that the English were worse masters than the Americans. About half of them, therefore, determined to stay in St. Simon's Island, and not a few of the others who accepted the offer and emigrated, had their lives shortened by the severity of the climate in Canada.

The slave trade ceased in 1796, and but few negroes were afterward smuggled into Georgia from foreign countries, except indirectly for a short time through Florida before its annexation; yet one fourth of the population of this lower country is said to have come direct from Africa, and it is a good sign of the progress made in civilization by the native-born colored race, that they speak of these "Africanians" with much of the contempt with which Europeans talk of negroes.

I was agreeably surprised to see the rank held here by the black mechanics. One day I observed a set of carpenters putting up sluices, and a lock in a canal of a kind unknown in this part of the world. The black foreman was carrying into execution a plan laid down for him on paper by Mr. Couper, who had observed it himself many years ago in Holland. I also saw a steam-engine, of fifteen horse power, made in England by Bolton and Watt, and used in a mill for threshing rice, which had been managed by a negro for more than twelve years without an accident. When these mechanics come to consult Mr. Couper on business, their manner of speaking to him is quite as independent as that of English artisans to their employers. Their aptitude for the practice of such mechanical arts may encourage every philanthropist who has had misgivings in regard to the progressive powers of the race, although much time will be required to improve the whole body of negroes, and the movement must be general. One planter can do little by himself, so long as education is forbidden by law. I am told that the old colonial statutes against teaching the slaves to read were almost in abeyance, and had become a dead letter, until revived by the reaction against the Abolition agitation, since which they have been rigorously enforced and made more stringent. Nevertheless, the negroes are often taught to read, and they learn much in Sunday schools, and for the most part are desirous of instruction.

In the hope of elevating the character of some of his negroes, and giving them more self-dependence, Mr. Couper, by way of experiment, set apart a field for the benefit of twenty-five picked men, and gave up to them half their Saturday's labor to till it. In order that they might know its value, they were compelled to work on it for the first year, and the product, amounting to 1500 dollars, was divided equally among them. But when, at length, they were left to themselves, they did nothing, and at the end of two years the field was uncultivated. But there appears to me nothing disheartening in this failure, which may have been chiefly owing to their holding the property in common, a scheme which was found not to answer even with the Pilgrim Fathers when they first colonized Plymouth—men whom certainly none will accuse of indolence or a disposition to shrink from continuous labor. The "*dolce far niente*" is doubtless the negro's paradise, and I once heard one of them singing with much spirit at Williamsburg an appropriate song :—

"Old Virginia never tire,
Eat hog and hominy, and lie by the fire ;"

and it is quite enough that a small minority should be of this mind, to make all the others idle and unwilling to toil hard for the benefit of the sluggards.

When conversing with different planters here, in regard to the capabilities and future progress of the black population, I find them to agree very generally in the opinion that in this part of Georgia they appear under a great disadvantage. In St. Simon's island it is admitted, that the negroes on the smaller estates are more civilized than on the larger properties, because they associate with a greater proportion of whites. In Glynn County, where we are now residing, there are no less than 4000 negroes to 700 whites ; whereas in Georgia generally there are only 281,000 slaves in a population of 691,000, or more whites than colored people. Throughout the upper country there is a large preponderance of Anglo-Saxons, and a little reflection will satisfy the reader how much the education of a race which starts originally from so low a stage of intellectual, social, moral, and

spiritual development, as the African negro, must depend not on learning to read and write, but on the amount of familiar intercourse which they enjoy with individuals of a more advanced race. So long as they herd together in large gangs, and rarely come into contact with any whites save their owner and overseer, they can profit little by their imitative faculty, and can not even make much progress in mastering the English language, that powerful instrument of thought and of the communication of ideas, which they are gaining in exchange for the limited vocabulary of their native tribes. Yet, even in this part of Georgia, the negroes are very far from stationary, and each generation is acquiring habits of greater cleanliness and propriety of behavior, while some are learning mechanical arts, and every year many of them becoming converts to Christianity.

Although the Baptist and Methodist missionaries have been the most active in this important work, the Episcopalians have not been idle, especially since Dr. Elliott became Bishop of Georgia, and brought his talents, zeal, and energy to the task. As he found that the negroes in general had no faith in the efficacy of baptism except by complete immersion, he performed the ceremony as they desired. Indeed, according to the old English rubric, all persons were required to be immersed in baptism, except when they were sick, so that to lose converts by not complying with this popular notion of the slaves, would hardly have been justifiable. It may be true that the poor negroes cherish a superstitious belief that the washing out of every taint of sin depends mainly on the particular manner of performing the rite, and the principal charm to the black women in the ceremony of total immersion consists in decking themselves out in white robes, like brides, and having their shoes trimmed with silver. They well know that the waters of the Altamaha are chilly, and that they and the officiating minister run no small risk of catching cold, but to this penance they most cheerfully submit.

Of dancing and music the negroes are passionately fond. On the Hopeton plantation above twenty violins have been silenced by the Methodist missionaries, yet it is notorious that the slaves were not given to drink or intemperance in their merry-makings.

At the Methodist prayer-meetings, they are permitted to move round rapidly in a ring, joining hands in token of brotherly love, presenting first the right hand and then the left, in which manœuvre, I am told, they sometimes contrive to take enough exercise to serve as a substitute for the dance, it being, in fact, a kind of spiritual *boulangier*, while the singing of psalms, in and out of chapel, compensates in no small degree for the songs they have been required to renounce.

However much we may feel inclined to smile at some of these outward tokens of conversion, and however crude may be the notions of the Deity which the poor African at first exchanges for his belief in the evil eye and other superstitious fears, it is nevertheless an immense step in his progress toward civilization that he should join some Christian sect. Before he has time to acquire high conceptions of his Creator, or to comprehend his own probationary state on earth, and his moral and religious duties, it is no small gain that he should simply become a member of the same church with his master, and should be taught that the white and colored man are equal before God, a doctrine calculated to raise him in his own opinion, and in that of the dominant race.

Until lately the humblest slave who joined the Methodist or Baptist denomination could feel that he was one of a powerful association of Christians, which numbered hundreds of thousands of brethren in the northern as well as in the southern states. He could claim many schools and colleges of high repute in New England as belonging to his own sect, and feel proud of many celebrated writers whom they have educated. Unfortunately, a recent separation, commonly called "the north and south split," has severed these bonds of fellowship and fraternity, and for the sake of renouncing brotherhood with slave-owners, the northern churches have repudiated all communion with the great body of their negro fellow Christians. What effect can such estrangement have on the mind, whether of master or slave, favorable to the cause of emancipation? The slight thrown on the aristocracy of planters has no tendency to conciliate them, or lead them to assimilate their sentiments to those of their brethren in the

faith, with whom formerly, throughout the northern and free states, they had so intimate a connection ; and as for the slaves, it is to them a positive loss to be thus rejected and disowned. The rank and position of the negro preachers in the south, whether Baptist or Methodist, some of them freemen, and of good abilities, is decidedly lowered by the severance of the northern churches, which is therefore adverse to the gradual advancement of the African race, which can alone fit them for manumission.

Some of the planters in Glynn County have of late permitted the distribution of Bibles among their slaves, and it was curious to remark that they who were unable to read were as anxious to possess them as those who could. Besides Christianizing the blacks, the clergy of all sects are doing them incalculable service, by preaching continually to both races that the matrimonial tie should be held sacred, without respect to color. To the dominant race one of the most serious evils of slavery is its tendency to blight domestic happiness ; and the anxiety of parents for their sons, and a constant fear of their licentious intercourse with slaves, is painfully great. We know but too much of this evil in free countries, wherever there is a vast distance between the rich and poor, giving a power to wealth which insures a frightful amount of prostitution. Here it is accompanied with a publicity which is keenly felt as a disgrace by the more refined of the white women. The female slave is proud of her connection with a white man, and thinks it an honor to have a mulatto child, hoping that it will be better provided for than a black child. Yet the mixed offspring is not very numerous. The mulattoes alone represent nearly all the illicit intercourse between the white man and negro of the living generation. I am told that they do not constitute more than two and a half per cent. of the whole population. If the statistics of the illegitimate children of the whites born here could be compared with those in Great Britain, it might lead to conclusions by no means favorable to the free country. Here there is no possibility of concealment, the color of the child stamps upon him the mark of bastardy, and transmits it to great-grand-children born in lawful wedlock ; whereas if, in Europe, there was some mark or indelible stain betraying all the delin-

quencies and frailties, not only of parents, but of ancestors for three or four generations back, what unexpected disclosures should we not witness !

There are scarcely any instances of mulattoes born of a black father and a white mother. The colored women who become the mistresses of the white men are neither rendered miserable nor degraded, as are the white women who are seduced in Europe, and who are usually abandoned in the end, and left to be the victims of want and disease. In the northern states of America there is so little profligacy of this kind, that their philanthropists may perhaps be usefully occupied in considering how the mischief may be alleviated south of the Potomac ; but in Great Britain there is so much need of reform at home, that the whole thoughts and energies of the rich ought to be concentrated in such schemes of improvement as may enable us to set an example of a higher moral standard to the slave-owning aristocracy of the Union.

On one of the estates in this part of Georgia, there is a mulatto mother who has nine children by a full black, and the difference of shade between them and herself is scarcely perceptible. If the white blood usually predominates in this way in the second generation, as I am told is the case, amalgamation would proceed very rapidly, if marriages between the races were once legalized ; for we see in England that black men can persuade very respectable white women to marry them, when all idea of the illegality and degradation of such unions is foreign to their thoughts.

Among the obstacles which the Christian missionaries encounter here when they teach the virtue of chastity, I must not omit to mention the loose code of morality which the Africans have inherited from their parents. My wife made the acquaintance of a lady in Alabama, who had brought up with great care a colored girl, who grew up modest and well-behaved, till at length she became the mother of a mulatto child. The mistress reproached her very severely for her misconduct, and the girl at first took the rebuke much to heart ; but having gone home one day to visit her mother, a native African, she returned, saying,

that her parent had assured her she had done nothing wrong, and had no reason to feel ashamed. When we are estimating, therefore, the amount of progress made by the American negroes since they left their native country, we ought always to bear in mind from how low a condition, both morally and intellectually considered, they have had to mount up.

END OF THE FIRST VOLUME.

A SECOND VISIT
TO
THE UNITED STATES
OF
NORTH AMERICA.

BY SIR CHARLES LYELL, F.R.S.,

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OF GEOLOGY," AND "TRAVELS IN NORTH AMERICA."

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A SECOND VISIT TO THE UNITED STATES.

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Darien to Savannah.—Black Baptist Church and Preacher.—Negro Prayer.—Negro Intelligence.—Bribery of Irish Voters.—Dirt Eaters.—Railway Expedition on Hand-Car.—Geology of Georgia.—Negroes more progressive in Upper Country.—Indifference of Georgians to Winter Cold.—Want of Elbow-Room in Pine-Barrens.

Jan. 9, 1846.—WHEN I had finished my geological examination of the southern and maritime part of Georgia, near the mouth of the Altamaha river, I determined to return northward to Savannah, that I might resume my survey at the point where I left off in 1842,* and study the tertiary and cretaceous strata between the Savannah and Alabama rivers.

On our way back from Hopeton to Darien, Mr. Couper and his son accompanied us in a canoe, and we passed through the General's Cut, a canal so called because, according to tradition, Oglethorpe's soldiers cut it out with their swords in one day. We met a great number of negroes paddling their canoes on their way back from Darien, for it was Saturday, when they are generally allowed a half holiday, and they had gone to sell on their own account their poultry, eggs, and fish, and were bringing back tobacco, clothes, and other articles of use or luxury.

Having taken leave of our kind host, we waited some hours at Darien for a steamer, which was to touch there on its way from St. Augustine in Florida, and which conveyed us speedily to Sa-

* See "Travels in North America," vol. i. pp. 155-174.

vannah. Next day, I attended afternoon service in a Baptist church at Savannah, in which I found that I was the only white man, the congregation consisting of about 600 negroes, of various shades, most of them very dark. As soon as I entered I was shown to a seat reserved for strangers, near the preacher. First the congregation all joined, both men and women, very harmoniously in a hymn, most of them having evidently good ears for music, and good voices. The singing was followed by prayers, not read, but delivered without notes by a negro of pure African blood, a gray-headed venerable-looking man, with a fine sonorous voice, named Marshall. He, as I learnt afterward, has the reputation of being one of their best preachers, and he concluded by addressing to them a sermon, also without notes, in good style, and for the most part in good English ; so much so, as to make me doubt whether a few ungrammatical phrases in the negro idiom might not have been purposely introduced for the sake of bringing the subject home to their family thoughts. He got very successfully through one flight about the gloom of the valley of the shadow of death, and, speaking of the probationary state of a pious man left for a while to his own guidance, and when in danger of failing saved by the grace of God, he compared it to an eagle teaching her newly fledged offspring to fly, by carrying it up high into the air, then dropping it, and, if she sees it falling to the earth, darting with the speed of lightning to save it before it reaches the ground. Whether any eagles really teach their young to fly in this manner, I leave the ornithologist to decide ; but when described in animated and picturesque language, yet by no means inflated, the imagery was well calculated to keep the attention of his hearers awake. He also inculcated some good practical maxims of morality, and told them they were to look to a future state of rewards and punishments in which God would deal impartially with "the poor and the rich, the black man and the white."

I went afterward, in the evening, to a black Methodist church, where I and two others were the only white men in the whole congregation ; but I was less interested, because the service and preaching was performed by a white minister. Nothing in my

whole travels gave me a higher idea of the capabilities of the negroes, than the actual progress which they have made, even in a part of a slave state, where they outnumber the whites, than this Baptist meeting. To see a body of African origin, who had joined one of the denominations of Christians, and built a church for themselves—who had elected a pastor of their own race, and secured him an annual salary, from whom they were listening to a good sermon, scarcely, if at all, below the average standard of the compositions of white ministers—to hear the whole service respectably, and the singing admirably performed, surely marks an astonishing step in civilization.

The pews were well fitted up, and the church well ventilated, and there was no disagreeable odor in either meeting-house. It was the winter season, no doubt, but the room was warm and the numbers great. The late Mr. Sydney Smith, when he had endeavored in vain to obtain from an American of liberal views, some explanation of his strong objection to confer political and social equality on the blacks, drew from him at length the reluctant confession that the idea of any approach to future amalgamation was insufferable to any man of refinement, unless he had lost the use of his olfactory nerves. On hearing which Mr. Smith exclaimed—

“ ‘Et si non alium latè jactaret odorem
Civis erat!’ * ”

And such, then, are the qualifications by which the rights of suffrage and citizenship are to be determined !”

A Baptist missionary, with whom I conversed on the capacity of the negro race, told me that he was once present when one of their preachers delivered a prayer, composed by himself, for the ordination of a minister of his sect, which, said he, was admirable in its conception, although the sentences were so ungrammatical, that they would pass, with a stranger, for mere gibberish. The prayer ran thus :—

“ Make he good, like he say,
Make he say, like he good,
Make he say, make he good, like he God.”

* Virgil, Georg. ii. 133.

Which may be thus interpreted :—Make him good as his doctrine, make his doctrine as pure as his life, and may both be in the likeness of his God.

This anecdote reminds me of another proof of negro intelligence, related to me by Dr. Le Conte, whose black carpenter came to him one day, to relate to him, with great delight, a grand discovery he had made, namely, that each side of a hexagon was equal to the radius of a circle drawn about it. When informed that this property of a hexagon had long been known, he remarked that if it had been taught him, it would have been practically of great use to him in his business.

There had been “a revival” in Savannah a short time before my return, conducted by the Methodists, in the course of which a negro girl had been so much excited, as to be thrown into a trance. The physician who attended her gave me a curious description of the case. If the nerves of only one or two victims are thus overwrought, it is surely more than questionable whether the evil does not counterbalance all the good done, by what is called “the awakening” of the indifferent.

I inquired one day, when conversing with some of the citizens here, whether, as New York is called the Empire State, Pennsylvania the Keystone State, Massachusetts the Bay State, and Vermont, when the question of its separation from New Hampshire was long under discussion, “the Future State,” in short, as almost all had some name, had they any designation for Georgia? It ought, they said, to be styled the Pendulum state, for the Whigs and Democrats get alternately possession of power; so that each governor is of opposite politics to his predecessor. The metropolis, they added, imitates the example of the State, electing the mayor and aldermen of Savannah one year from the Democratic and the next from the Whig party. It has been of late a great point, in electioneering tactics, to secure the votes of fifty or sixty Irish laborers, who might turn the scale here, as they have so often done in New York, in the choice of city officers. In the larger city they were conciliated for some years by employment in the Croton waterworks, so that “pipe-laying” became the slang term for this kind of bribery; here, it ought to

be called "reed-cutting," for they set the Hibernians to cut down a dense crop of tall reeds (*Sesbania vesicaria*), which covers the canal and the swamps round the city, growing to the height of fifteen feet, and, like the city functionaries, renewed every year. Some members of the medical college, constituting a board of health, have just come out with a pamphlet, declaring, that by giving to the sun's rays, in summer, free access to the mud in the bogs, and thus promoting the decay of vegetable matter, the cutting down of these reeds has caused malaria.

In the course of all my travels, I had never seen one opossum in the woods, nor a single racoon, their habits being nocturnal, yet we saw an abundant supply of both of them for sale in the market here. The negroes relish them much, though their flesh is said to be too coarse and greasy for the palate of a white man. The number of pine-apples and bananas in the market, reminded us of the proximity of the West Indies. We observed several negroes there, whose health had been impaired by dirt-eating, or the practice of devouring aluminous earth—a diseased appetite, which, as I afterward found, prevails in several parts of Alabama, where they eat clay. I heard various speculations on the origin of this singular propensity, called "geophagy" in some medical books. One author ascribes it to the feeding of slaves too exclusively on Indian corn, which is too nourishing, and has not a sufficiency in it of inorganic matter, so that when they give it to cattle, they find it best to grind up the cob and part of the stalk with the grain. But this notion seems untenable, for a white person was pointed out to me, who was quite as sickly, and had a green complexion, derived from this same habit; and I was told of a young lady in good circumstances, who had never been stinted of her food, yet who could not be broken of eating clay.

Jan. 13.—From Savannah we went by railway to Macon in Georgia, a distance of 191 miles, my wife going direct in a train which carried her in about twelve hours to her destination, accompanied by one of the directors of the railway company, who politely offered to escort her. The same gentleman supplied me with a hand-car and three negroes, so that I was able to perform the journey at my leisure, stopping at all the recent

cuttings, and examining the rocks and fossils on the way. I was desirous of making these explorations, because this line of road traverses the entire area occupied by the tertiary strata between the sea and the borders of the granitic region, which commences at Macon, and the section was parallel to that previously examined by me on the Savannah river in 1842. When I came to low swampy grounds, or pine-barrens, where there were no objects of geological interest, my black companions propelled me onward at the rate of ten or twelve miles an hour, by turning a handle connected with the axis of the wheels. Their motions were like those of men drawing water from a well. Throughout the greater part of the route, an intelligent engineer accompanied me. As there was only one line of rail, and many curves, and as the negroes can not be relied on for caution, he was anxious for my safety, while I was wholly occupied with my geology. I saw him frequently looking at his watch, and often kneeling down, like "Fine-ear" in the fairy tale, so as to place his ear in contact with the iron rails to ascertain whether a passenger or luggage-train were within a mile or two. We went by Parramore's Hill, where the sandstone rocks detained me some time, and, at the ninety-fifth mile station from Savannah, I collected fossils, consisting of marine shells and corals. These were silicified in the burr-stone, of which mill-stones are manufactured. Near Sandersville I saw a limestone from which Eocene shells and corals are procured, as well as the teeth of sharks and the bones of the huge extinct cetacean called Zeuglodon. Here I had ample opportunities of confirming the opinion I had previously announced as the result of my labors in 1842, that this burr-stone, with its red, yellow, and white sands, and its associated porcelain clays or kaolin, constitutes one of the members of the Eocene group, overlying the great body of calcareous rock, once supposed by some to be cretaceous, but which really belongs to the same tertiary period.* Although the summit level of the railway attains an elevation of about 500 feet, descending afterward somewhat abruptly to Macon, which is only 300 feet above the sea, it is surprising how we stole imperceptibly up this ascent, as if on a perfectly level plain, every

* See Quarterly Journ. of Geol. Society, 1845, p. 563.

where covered with wood, following chiefly the swampy valley of the Ogeechee River, in such a manner as to miss seeing all the leading features in the physical geography of the country. Had I not, when at Hopeton, seen good examples of that succession of steps, or abrupt escarpments, by which a traveler in passing from the sea-coast to the granite region ascends from one great terrace to another, I should have doubted the accuracy of Bartram's description.*

I had many opportunities, during this excursion, of satisfying myself of the fact for which I had been prepared by the planters "on the sea-board," that the intelligence of the colored race increased in the interior and upland country in proportion as they have more intercourse with the whites. Many of them were very inquisitive to know my opinion as to the manner in which marine shells, sharks' teeth, sea-urchins, and corals could have been buried in the earth so far from the sea and at such a height. The deluge had occurred to them as a cause, but they were not satisfied with it, observing that they procured these remains not merely near the surface, but from the bottom of deep wells, and that others were in flint stones. In some places, when I left the railway and hired a gig to visit plantations far from the main road, the proprietor would tell me he was unable to answer my questions, his well having been sunk ten or twelve years ago. In that period the property had changed hands two or three times, the former owners having settled farther south or southwest; but the estate had remained under the management of the same head negro, to whom I was accordingly referred. This personage, conscious of his importance, would begin by enlarging, with much self-complacency, on the ignorance of his master, who had been too short a time in those parts to understand any thing I wished to know. When at length he condescended to come to the point, he could usually give me a clear account of the layers of sand, clay, and limestone they had passed through, and of fishes' teeth they had found, some of which had occasionally been preserved. In proportion as these colored people fill places of trust, they are involuntarily treated more as equals by the whites. The prejudices which

* Ante, vol. i. p. 257.

keep the races asunder would rapidly diminish, were they not studiously kept up by artificial barriers, unjust laws, and the reaction against foreign interference. In one of the small farms, where I passed the night, I was struck with the good manners and pleasant expression of countenance of a young woman of color, who had no dash of white blood in her veins. She managed nearly all the domestic affairs of the house, the white children among the rest, and, when next day I learnt her age, from the proprietor, I expressed surprise that she had never married. "She has had many offers," said he, "but has declined all, for they were quite unworthy of her,—rude and uncultivated country people. I do not see how she is to make a suitable match here, though she might easily do so in a large town like Savannah." He spoke of her just as he might have done of a white free maid-servant.

If inter-marriages between the colored and white races were not illegal here, how can we doubt that as Englishwomen sometimes marry black servants in Great Britain, others, who came out here as poor emigrants, would gladly accept an offer from a well-conducted black artisan or steward of an estate, a man of intelligence and sober habits, preferable in so many respects to the drunken and illiterate Irish settlers, who are now so unduly raised above them by the prejudices of race!

In one family, I found that there were six white children and six blacks, of about the same age, and the negroes had been taught to read by their companions, the owner winking at this illegal proceeding, and seeming to think that such an acquisition would rather enhance the value of his slaves than otherwise. Unfortunately, the whites, in return, often learn from the negroes to speak broken English, and, in spite of losing much time in unlearning ungrammatical phrases, well-educated people retain some of them all their lives.

As I stopped every evening at the point where my geological work for the day happened to end, I had sometimes to put up with rough quarters in the pine-barrens. It was cold, and none of my hosts grudged a good fire, for large logs of blazing pine-wood were freely heaped up on the hearth, but the windows and doors were kept wide open. One morning, I was at breakfast

with a large family, at sunrise, when the frost was so hard, that every pool of water in the road was incrustated with ice. In the course of the winter, some ponds, they said, had borne the weight of a man and horse, and there had been a coroner's inquest on the body of a man, lately found dead on the road, where the question had been raised whether he had been murdered or frozen to death. They had placed me in a thorough draught, and, unable to bear the cold any longer, I asked leave to close the window. My hostess observed, that "I might do so, if I preferred sitting in the dark." On looking up, I discovered that there was no glass in the windows, and that they were furnished with large shutters only. For my own part, I would willingly have been content with the light which the pine-wood gave us, but seeing the women and girls, with bare necks and light clothing, perfectly indifferent to the cold, I merely asked permission to put on my great coat and hat. These Georgians seemed to me, after their long summer, to be as insensible to the frost as some Englishmen the first winter after their return from India, who come back charged, as it were, with a superabundant store of caloric, and take time, like a bar of iron out of a furnace, to part with their heat.

A farmer near Parramore's Hill, thinking I had come to settle there, offered to sell me some land at the rate of two dollars an acre. It was well timbered, and I found that the wood growing on this sandy soil is often worth more than the ground which it covers. Another resident in the same district, told me he had bought his farm at two and a half dollars (or about half-a-guinea) an acre, and thought it dear, and would have gone off to Texas, if he were not expecting to reap a rich harvest from a thriving plantation of peach trees and nectarines, just coming into full bearing. A market for such fruit had recently been opened by the new railway, from Macon to Savannah. He complained of want of elbow-room, although I found that his nearest neighbor was six or seven miles distant; but, he observed, that having a large family of children, he wished to lay out his capital in the purchase of a wider extent of land in Texas, and so be the better able to provide for them.

CHAPTER XXI.

Indian Mounds and Block-house at Macon, Georgia.—Fashionists.—Funeral of Northern Man.—Geology and silicified Corals and Shells.—Stage traveling to Milledgeville.—Negro Children.—Home-made Soap.—Decomposition of Gneiss.—Deep Ravines recently excavated after clearing of Forest.—Man shot in a Brawl.—Disappointed Place-Hunter.—Lynch Law in Florida.—Repeal of English Corn-Laws.—War Spirit abating.

Jan. 15, 1846.—WHEN I was within twenty miles of Macon, I left the hand-car and entered a railway-train, which carried me in one hour into the town. About a mile south of the place we passed the base of two conical Indian mounds, the finest monuments of the kind I had ever seen. The first appearance of a large-steam vessel ascending one of the western tributaries of the Mississippi, before a single Indian has been dispossessed of his hunting grounds, or a single tree of the native forest has been felled, scarcely affords a more striking picture of a wilderness invaded by the arts of civilized life, than Macon, in Georgia, resounding to the sound of a locomotive engine. On entering the town, my eye was caught by a striking object, a wooden edifice of very peculiar structure and picturesque form, crowning one of the hills in the suburbs. This, I was told, on inquiry, was a block-house, actually in use against the Indians only twenty-five years ago, before any habitations of the white men were to be seen in the forest here. It was precisely one of those wooden forts so faithfully described by Cooper in the “Path-finder.” After the mind has become interested with such antiquities, it is carried back the next moment to the modern state of things by an extraordinary revulsion, when a fellow-passenger, proud of the sudden growth of his adopted city, tells you that another large building, also conspicuous on a height, is a female seminary lately established by the Methodists, “where all the young ladies take degrees;” and then, as you pace the streets with your baggage to the hotel, another says to you, “There go two of our fashion-

ists," pointing to two gayly-dressed ladies, in the latest Parisian costume.

I had seen, in the pale countenances of the whites in the pine-woods I had lately traveled through, the signs of much fever and ague prevalent in the hot season in Georgia, but at Macon we heard chiefly of consumptive patients, who have fled from the northern states in the hope of escaping the cold of winter. The frost, this year, has tried them severely in the south. Two days before I reached Macon, a young northern man had died in the hotel where my wife was staying, a melancholy event, as none of his friends or relatives were near him. Lucy, the chambermaid of the hotel, an intelligent bright mulatto, from Maryland, who expressed herself as well as any white woman, came to tell my wife that the other ladies of the house were to be present at the funeral, and invited her to attend. She found the two drawing-rooms thrown into one, and the coffin placed on a table between the folding doors, covered with a white cloth. There were twenty or thirty gentlemen on the one side, and nearly as many ladies and children on the other, none of them in mourning. The Episcopal clergyman who officiated, before reading the usual burial service, delivered a short and touching address, alluding to the stranger cut off in his youth, far from his kindred, and exhorting his hearers not to defer the hour of repentance to a death-bed, when their reason might be impaired or taken from them. After the prayers, six of the gentlemen came forward to carry the coffin down stairs, to put it into a small hearse drawn by a single horse, and three carriages followed with as many as they could hold, to the cemetery of Rose Hill. This burial-ground is in a beautiful situation on a wooded hill, near the banks of the Ocmulgee and overlooking the Falls.

These falls, like so many of those on the rivers east of the Alleghanies, are situated on the line of junction of the granitic and tertiary regions.* The same junction may also be seen at the bridge over the Ocmulgee, at Macon, the red loam of the tertiary formation resting there on mica schist. At the distance of one mile southeast of the town, a railway cutting has exposed a series

* See "Travels in N. America," vol. i. p. 132.

of beds of yellow and red clay, with accompanying sands of tertiary formation, and, at the depth of forty feet, I observed a large fossil tree converted into lignite, the concentric rings of annual growth being visible. Receding from the granitic rocks, six or eight miles still farther to the southeast, I found at Brown Mountain, a bluff on the Ocmulgee River, and at other places in the neighborhood, a great many siliceous casts of fossil shells and corals, and among others a large nautilus, the whole indicating that these beds of cherty sandstone and impure limestone belong to the Eocene period.

As there is much kaolin in this series of chert and burr-stone strata, I have little doubt that the petrification of fossil-wood, and of shells and corals, has taken place in consequence of the decomposition of the imbedded felspathic rocks and crystals of felspar, taking place simultaneously with the putrefaction of the organic bodies. The siliceous matter, just set free from its chemical combination in the felspar, would replace each organic particle as fast as it decayed or was resolved into its elements.

From Macon I went to Milledgeville, twenty-five miles to the northeast, the capital of Georgia. Instead of taking the direct road, we made a detour, going the first thirty miles on the Savannah railway, to a station called Gordon, where we found a stage-coach ready to drag us through the deep sands of the pine-barrens, or to jolt us over corduroy roads in the swamps. As we were traversing one of the latter, at the rate of half a mile an hour, I began to contrast the speed of the new railway with stage-traveling. Our driver maintained that he could go as fast as the cars. "How do you make that out?" said I. "Put a locomotive," he replied, "on this swamp, and see which will get on best. The most you can say is, that each kind of vehicle runs fastest on its own line of road."

We were passing some cottages on the way-side, when a group of children rushed out, half of them white and half negro, shouting at the full stretch of their lungs, and making the driver fear that his horses would be scared. They were not only like children in other parts of the world, in their love of noise and mischief, but were evidently all associating on terms of equality, and

had not yet found out that they belonged to a different caste in society. One of our passengers was a jet black youth, about ten years old, who got down at a lone house in the woods, from the door of which two mulatto boys a year or two younger ran out. There was much embracing and kissing, and mutual caressing, with more warmth of manner than is usually shown by the whites. We were glad to see the white mistress of the house, probably the owner of them and their parents, looking on with evident pleasure and interest at the scene.

Milledgeville, a mere village, though the capital of the state, is provided with four neat and substantial wooden churches, clustered together, the Presbyterian, Baptist, Methodist, and Episcopalian. In the latter we found there was to be no service, as the clergyman had been recently "called" to a larger church, newly built, at Savannah. The Presbyterian minister was from New England, and an excellent preacher. He exhorted his congregation to take the same view of their short sojourn on this globe, which the emigrant takes of his journey to the far west, bearing patiently great hardships and privations, because, however severe at the time, he knows they will soon end, and prove momentary in their duration, in comparison with the longer period which he hopes to spend in a happier land.

At our hotel apologies were made to us by a neatly-dressed colored maid, for the disorderly state of our room, the two beds having been recently occupied by four members of the Legislature, who, according to her, "had turned the room into a hog-pen, by smoking and spilling their brandy and wine about the floor."

While I was geologizing in the suburbs, the Governor's lady called on my wife and took her to her residence, called here the "Executive Mansion," as appears by the inscription over the door. It contained some handsome reception-rooms newly furnished by the last governor, but the white ground of a beautiful Axminster carpet had been soiled and much damaged the first evening after it was put down, at a levee, attended by several hundred men, each walking in after a heavy rain with his shoes covered with mud.

When the governor's wife paid us a second visit, our landlady made herself one of the party just as if we were all visitors at her house. She was very much amused at my wife's muff, having never seen one since she was a girl, half a century before, at Baltimore, yet the weather was now cold enough to make such an article of dress most comfortable. Among other inquiries, she said to my wife, "Do tell me how you make your soap in England." Great was her surprise to hear that ladies in that country were in the habit of buying the article in shops, and would be much puzzled if called upon to manufacture it for themselves. As it was evident she had never studied Adam Smith on the Division of Labor, she looked upon this fine-lady system of purchasing every article at retail stores, as very extravagant. "That's the way they do in the north," said she, "though I never could understand where all their money comes from." She then explained how economically she was able to supply herself with soap. "First, there is the wood, which costs nothing but the trouble of felling the trees; and, after it has served for fuel, it yields the ashes, from which we get the potash. This is mixed with the fat of sixty hogs, which costs nothing, for what else could I do with all this fat at killing time? As for the labor, it is all done by my own people. I have nine maids, and they make almost every thing in the house, even to the caps I wear." Touching the soap, she observed, we must be careful to select the ashes of the oak, hickory, ash, and other hard wood, for the pines yield no potash; a remark which led me to speculate on the luxuriant growth of the long-leaved pines in the purely siliceous tertiary soils, from which it would have been difficult to conceive how the roots of the trees could extract any alkaline matter, whereas the soil of the "hickory grounds" is derived from the disintegration of granitic rocks, which are very felspathic here, and are decomposing in situ.

Having occasion to hire a horse, I found that the proprietor of the livery stables was a colored man, who came himself to bargain about the price, which was high compared to that asked in the north.

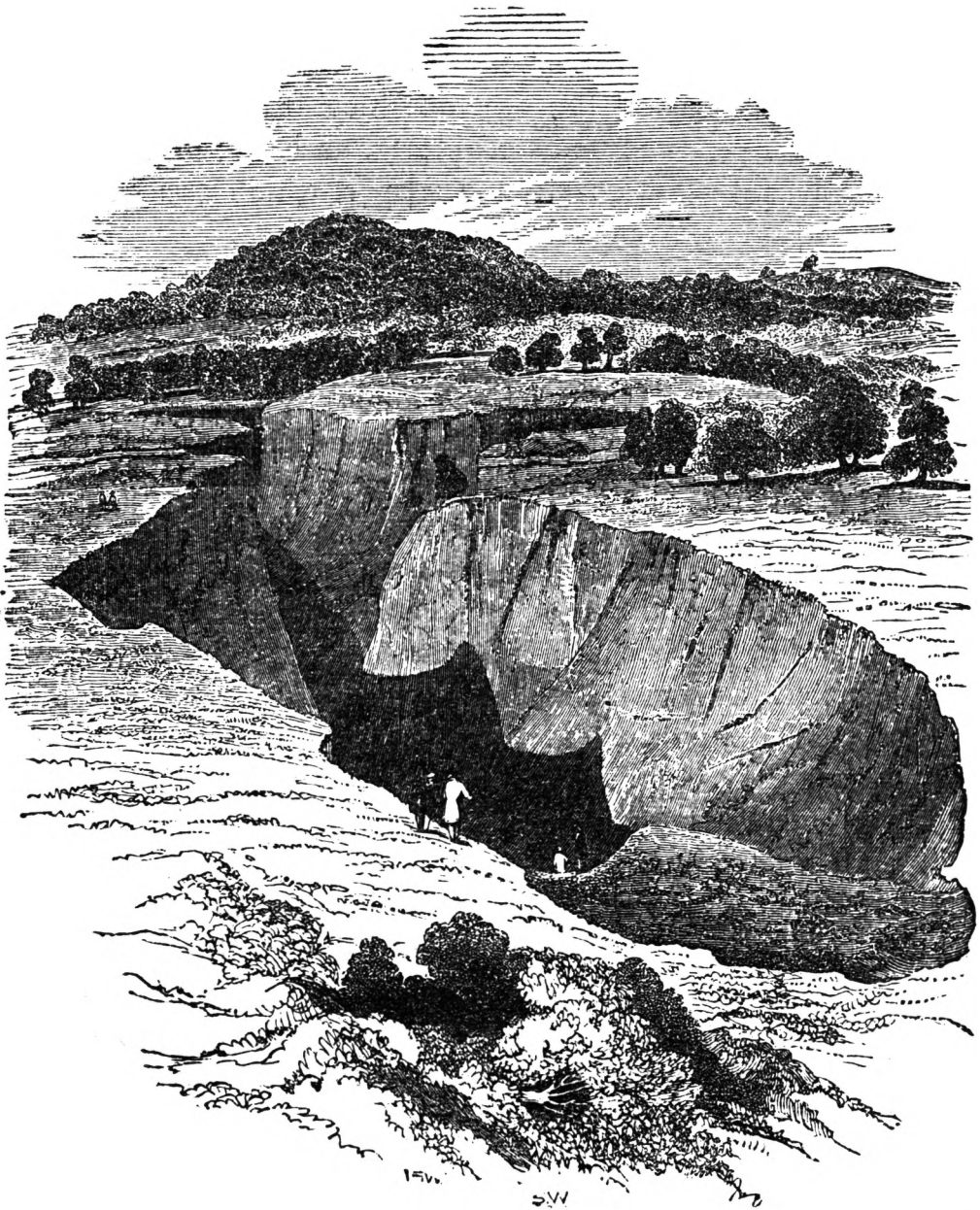
The site of Milledgeville is 577 feet above the level of the

sea, and, like Macon, it stands on the boundary of the tertiary and granitic region. Dr. J. R. Cotting, who had been employed by the state to make a geological survey of part of Georgia, showed me in the State House some fossils collected by him, and he accompanied me in an excursion into the neighborhood of the capital. It is well worthy of remark, that here, as every where in Georgia and Alabama, there are loose blocks of granite and gneiss strewed over the granitic area ; but no fragments of them are ever seen to cross the boundary into the area composed of the tertiary strata, where small pebbles only are seen washed out of the sands. Farther to the north, in Massachusetts, for example, and the island of Martha's Vineyard, we see enormous erratics of granite, twenty-five and thirty feet in diameter, which must have come from the north, probably from the mountains of New Hampshire, resting on the tertiary clays and rocks ;* and in Long Island (New York), a variety of transported blocks repose upon, or are interstratified with very modern deposits. In the southern states the same causes have not been in action, and if we suppose icebergs to have been the transporting power in the north, it seems natural that their action should not have extended to the southern states, so as to carry fragments of crystalline rocks out of the granitic region. Yet it is striking around Milledgeville, to see so many large detached and rounded boulders of granite lying on the surface of the soil, and all strictly confined within the limits of the granitic region. One of these, on the slope of a hill three miles from the town, resting on gneiss, measured twelve feet in its longest diameter, and was four feet high. I presume that these boulders are nearly in situ ; they may have constituted "tors" of granite, like those in Cornwall, fragments of masses, once more extensive, left by denudation at a period when the country was rising out of the sea, and fragments may have been occasionally thrown down by the waves, and swept to a small distance from their original sites. The latitude of Milledgeville is $32^{\circ} 20'$ north, or considerably to the south of the most southern limits to which the northern drift with its erratics has hitherto been traced in the United States.

* Travels in N. America, vol. i. p. 259, chap. xii.

Another most singular phenomenon in the environs of Milledgeville is the depth to which the gneiss and mica schist have decomposed in situ. Some very instructive sections of the disintegrated rocks have been laid open in the precipices of recently formed ravines. Were it not that the original intersecting veins of white quartz remain unaltered to show that the layers of sand, clay, and loam are mere laminæ of gneiss and mica schist, resolved into their elements, a geologist would suppose that they were ordinary alternations of sandy and clayey beds with occasional cross stratification, the whole just in the state in which they were first deposited. Now and then, as if to confirm the deception, a large crystal of felspar, eight or ten inches long, is seen to retain its angles, although converted into kaolin. Similar crystals, almost as perfect, may be seen washed into the tertiary strata south of the granitic region, where white porcelain clays, quartzose gravel, sand, and micaceous loam are found, evidently derived from the waste of decomposed crystalline rocks. I am not surprised, therefore, that some geologists should have confounded the ancient gneiss of this district, thus decomposed in situ, with the tertiary deposits. Their close resemblance confirms me in the opinion, that the arrangement of the gneiss and mica schist in beds with subordinate layers, both horizontal and oblique, was originally determined, in most cases at least, by aqueous deposition, although often modified by subsequent crystalline action.

The surprising depth of some of the modern ravines, in the neighborhood of Milledgeville, suggests matter of curious speculation. At the distance of three miles and a half due west of the town, on the direct road to Macon, on the farm of Pomona, is the ravine represented in the annexed wood-cut (p. 29). Twenty years ago it had no existence; but when the trees of the forest were cut down, cracks three feet deep were caused by the sun's heat in the clay; and, during the rains, a sudden rush of water through these cracks, caused them to deepen at their lower extremities, from whence the excavating power worked backward, till, in the course of twenty years, a chasm, measuring no less than 55 feet in depth, 300 yards in length, and varying in width

Fig. 7.

Ravine on the Farm of Pomona, near Milledgeville, Georgia. January, 1846.

Excavated in the last twenty years, 55 feet deep, and 180 feet broad.

from 20 to 180 feet was the result. (See fig. 7, p. 29.) The high road has been several times turned to avoid this cavity, the enlargement of which is still proceeding, and the old line of road may be seen to have held its course directly over what is now the widest part of the ravine. In the perpendicular walls of this great chasm appear beds of clay and sand, red, white, yellow, and green, produced by the decomposition in situ of hornblendic gneiss, with layers and veins of quartz, as before-mentioned, and of a rock consisting of quartz and felspar, which remain entire to prove that the whole mass was once crystalline.

In another place I saw a bridge thrown over a recently formed gulley, and here, as in Alabama, the new system of valleys and of drainage, attendant on the clearing away of the woods, is a source of serious inconvenience and loss.

I infer, from the rapidity of the denudation caused here by running water, after the clearing or removal of wood, that this country has been always covered with a dense forest, from the remote time when it first emerged from the sea. However long may have been the period of upheaval required to raise the marine tertiary strata to the height of more than 600 feet, we may conclude that the surface has been protected by more than a mere covering of herbage from the effects of the sudden flowing off of the rain water.

I know it may be contended that, when the granite and gneiss first rose as islands out of the sea, they may have consisted entirely of hard rock, which resisted denudation, and therefore that we can only affirm that the forest has been continuous from the time of the decomposition and softening of the upper portion of these rocks. But I may reply, that similar effects are observable, even on a grander scale, in recently excavated ravines seventy or eighty feet deep, in some newly cleared parts of the tertiary regions of Alabama, as in Clarke County, for example, and also in some of the cretaceous strata of loose gravel, sand, and clay, in the same state at Tuscaloosa. These are at a much greater height above the sea, and must, from the first, have been as destructible as they are now.

We returned to Macon by our former route, through the pine

woods, and when we stopped to change horses, a lady, who was left for a time alone in the coach with my wife, informed her, that a young man who had been sitting opposite to them, had, the day before, shot an Irishman in a tavern, and was flying from justice. A few days later we learnt that the wounded man had not died, but as it was a Penitentiary offense, it was prudent for the culprit to keep out of the way for a time. On hearing this, I asked one of my companions how it was possible, when such affairs were occurring, and the police was so feeble, we could travel night and day, and feel secure from personal violence. "There is no danger here," he said, "of robbery, as in Europe, for we have none who are poor, or rendered vicious and desperate by want. No murders are committed here except in personal quarrels, and are almost always the act of restless and unquiet spirits, who seek excitement in gambling and drink. The wars in Texas relieved us of many of these dare-devils."

One of our fellow-travelers seemed to be a disappointed place-hunter, who had been lobbying the House of Legislature in vain for the whole session. He was taking his revenge by telling many a story against an assembly, which had been so obtuse as not to discover his merits. Twelve of them, he said, from the upper country, could not even read, and one of these happening, when in the House, to receive an invitation to the Governor's annual dinner, rose, and, holding the card in his hand, with the writing upside down, said, "Mr. Speaker, I am determined to oppose this resolution." Another, when they were debating whether they should move the Capital, or seat of legislature, from Milledgeville to Macon, went out, and, on resuming his seat, declared they were wasting their time, for he had measured, and made a rough estimate of the weight of the building (which was of stone), and found, on calculation, that all the oxen in Georgia could not drag it a single mile !

There was much talk here of a recent exhibition on the frontiers of Georgia, of what is commonly called Lynch law, which invalidated the assertion of my companion in regard to the absence of robbers. Many people having been plundered of their property, especially their negroes, organized a private association

for putting down the thieves, who came from Florida, and having arrested one of them, named Yoermans, they appointed a committee of twelve to try him. Witnesses having been sworn, a verdict of guilty was returned, and the punishment of death decided upon, by a vote of six to one. They then crossed from Georgia into Florida, where the prisoner confessed, under the gallows, that he was a murderer and robber, and called upon a preacher of the gospel, three or four of whom were present, as well as a justice of the peace, to pray for him, after which he was hung.

I expressed my horror at these transactions, observing that Florida, if in so rude and barbarous a state, ought not to have been admitted into the Union. My companions agreed to this, but said they believed the man had fair play on his trial, and added, "If you were a settler there, and had no other law to defend you, you would be glad of the protection of Judge Lynch."

The news had just reached Milledgeville and Macon of the English premier's speech in favor of the free importation of foreign corn, a subject discussed here with as much interest as if it were a question of domestic policy. The prospect of increased commercial intercourse with England, is regarded by all as favorable to peace, especially as the western states, the most bellicose in the whole Union, will be the chief gainers. Even before this intelligence arrived, the tone of the public mind was beginning to grow somewhat less warlike. The hero in a new comic piece, on the stage at New York, personifies the member for Oregon, and talks big about "our destiny," and "the whole of Oregon or none." We also observe an extract from the "North American Review" going the round of the newspapers, in which the Oregon dispute is compared to Dandie Dinmont's famous law-suit with Jock o'Dawston about the marches of their farms, and Counsellor Pleydell's advice to his client is recommended for imitation.

"We should have a war to-morrow," said a Whig politician to me at Macon, "if your democracy were as powerful as ours, for the most radical of your newspapers are the most warlike.

Your ministers seem more free from anti-American prejudices than the ordinary writers of travels, reviews, or newspaper articles, and they have a great advantage over our government at Washington. One of our statesman, a late candidate for the presidency, is said to have declared, that when so many millions are admitted into the cabinet, it is scarcely possible to manage a delicate point of foreign policy with discretion."

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CHAPTER XXII.

Macon to Columbus by Stage.—Rough Traveling.—Passage of Flint River.—Columbus.—Recent Departure of Creek Indians.—Falls of the Chatahoochie.—Competition of Negro and White Mechanics.—Age of Pine Trees.—Abolitionist “Wrecker” in Railway Car.—Runaway Slave.—Sale of Novels by Newsboys.—Character of Newspaper Press.—Geology and Cretaceous Strata, Montgomery.—Curfew.—Sunday School for Negroes.—Protracted Meeting.

Jan. 21, 1846.—HITHERTO we had traveled from the north by railway or steam ship, but from Macon, on our way south, we were compelled to resort to the stage coach, and started first for Columbus. For the first time we remarked that our friends, on parting, wished us a *safe* journey, instead of a pleasant one, as usual. There had been continued rains, and the roads were cut up by wagons bringing heavy bales of cotton to the Savannah railroad. We passed Knoxville, a small and neat town, and, after dark, supped at a small roadside inn, on pork chops, waffles, and hominy, or porridge made of Indian meal. Here we were told that the stage of the night before had been water-bound by the rising of the rivers. We went on, however, to the great Flint River, where the stage drove into a large flat-boat or raft. The night was mild, but dark, and the scene which presented itself very picturesque. A great number of negroes were standing on both banks, chattering incessantly, and holding in their hands large blazing torches of pine-wood, which threw a red light on the trees around. The river was much swollen, but we crossed without impediment. It was the first stream we had come to of those flowing into the Gulf of Mexico.

Our coach was built on a plan almost universal in America, and like those used in some parts of France, with three seats, the middle one provided with a broad leather strap, to lean back upon. The best places are given to the ladies, and a husband is seated next his wife. There are no outside passengers, except

occasionally one sitting by the driver's side. We were often called upon, on a sudden, to throw our weight first on the right, and then on the left side, to balance the vehicle and prevent an upset, when one wheel was sinking into a deep rut. Sometimes all the gentlemen were ordered to get out in the dark, and walk in the wet and muddy road. The coachman would then whip on his steeds over a fallen tree or deep pool, causing tremendous jolts, so that my wife was thrown first against the roof, and then against the sides of the lightened vehicle, having almost reason to envy those who were merely splashing through the mud. To sleep was impossible, but at length, soon after daybreak, we found ourselves entering the suburbs of Columbus; and the first sight we saw there was a long line of negroes, men, women, and boys, well dressed and very merry, talking and laughing, who stopped to look at our coach. On inquiry, we were told that it was a gang of slaves, probably from Virginia, going to the market to be sold.

Columbus, like so many towns on the borders of the granitic and tertiary regions, is situated at the head of the navigation of a large river, and the rapids of the Chatahoochie are well seen from the bridge by which it is here spanned. The vertical rise and fall of this river, which divides Georgia from Alabama, amounts to no less than sixty or seventy feet in the course of the year; and the geologist should visit the country in November, when the season is healthy and the river low, for then he may see exposed to view, not only the horizontal tertiary strata, but the subjacent cretaceous deposits, containing ammonites, baculites, and other characteristic fossils. These organic remains are met with some miles below the town, at a point called "Snake's Shoals;" and Dr. Boykin showed us a collection of the fossils, at his agreeable villa in the suburbs. In an excursion which I made with Mr. Pond to the Upotoy Creek, I ascertained that the cretaceous beds are overlaid every where by tertiary strata, containing fossil wood and marine shells.

The last detachment of Indians, a party of no less than 500, quitted Columbus only a week ago for Arkansas, a memorable event in the history of the settlement of this region, and part

of an extensive and systematic scheme steadily pursued by the Government, of transferring the aborigines from the eastern states to the far west.

Here, as at Milledgeville, the clearing away of the woods, where these Creek Indians once pursued their game, has caused the soil, previously level and unbroken, to be cut into by torrents, so that deep gulleys may every where be seen ; and I am assured that a large proportion of the fish, formerly so abundant in the Chatahoochie, have been stifled by the mud.

The water-power at the rapids has been recently applied to some newly-erected cotton mills, and already an anti-free-trade party is beginning to be formed. The masters of these factories hope, by excluding colored men—or, in other words, slaves—from all participation in the business, to render it a genteel employment for white operatives ; a measure which places in a strong light the inconsistencies entailed upon a community by slavery and the antagonism of races, for there are numbers of colored mechanics in all these southern states very expert at trades requiring much more skill and knowledge than the functions of ordinary work-people in factories. Several New Englanders, indeed, who have come from the north to South Carolina and Georgia, complain to me that they can not push on their children here, as carpenters, cabinet makers, blacksmiths, and in other such crafts, because the planters bring up the most intelligent of their slaves to these occupations. The landlord of an inn confessed to me, that, being a carrier, he felt himself obliged to have various kinds of work done by colored artisans, because they were the slaves of planters who employed him in his own line. “ They interfere,” said he, “ with the fair competition of white mechanics, by whom I could have got the work better done.”

These northern settlers are compelled to preserve a discreet silence about such grievances when in the society of southern slave-owners, but are open and eloquent in descanting upon them to a stranger. They are struck with the difficulty experienced in raising money here, by small shares, for the building of mills. “ Why,” say they, “ should all our cotton make so long a journey to the north, to be manufactured there, and come back to us at

so high a price? It is because all spare cash is sunk here in purchasing negroes. In order to get a week's work done for you, you must buy a negro out and out for life."

From Columbus we traveled fifty-five miles west to Chehaw, to join a railway, which was to carry us on to Montgomery. The stage was drawn by six horses, but as it was daylight we were not much shaken. We passed through an undulating country, sometimes on the tertiary sands covered with pines, sometimes in swamps enlivened by the green palmetto and tall magnolia, and occasionally crossing into the borders of the granitic region, where there appeared immediately a mixture of oak, hickory, and pine. There was no grass growing under the pine trees, and the surface of the ground was every where strewn with yellow leaves, and the fallen needles of the fir trees. The sound of the wind in the boughs of the long-leaved pines always reminded me of the waves breaking on a distant sea-shore, and it was agreeable to hear it swelling gradually, and then dying away, as the breeze rose and fell. Observing at Chehaw a great many stumps of these firs in a new clearing, I was curious to know how many years it would take to restore such a forest if once destroyed. The first stump I examined measured two feet five inches in diameter at the height of three feet from the ground, and I counted in it 120 rings of annual growth; a second measured less by two inches in diameter, yet was 260 years old; a third, at the height of two feet above the ground, although 180 years old, was only two feet in diameter; a fourth, the oldest I could find, measured, at the height of three feet above its base, four feet, and presented 320 rings of annual growth; and I could have counted a few more had the tree been cut down even with the soil. The height of these trees varied from 70 to 120 feet. From the time taken to acquire the above dimensions, we may confidently infer that no such trees will be seen by posterity, after the clearing of the country, except where they may happen to be protected for ornamental purposes. I once asked a surveyor in Scotland why, in planting woods with a view to profit, the oak was generally neglected, although I had found many trunks of very large size buried in peat-mosses. He asked if I had ever

counted the rings of growth in the buried trees, to ascertain their age, and I told him I had often reckoned up 300, and once upward of 800 rings ; to which he replied, " Then plant your shillings in the funds, and you will see how much faster they would grow."

Before reaching Chehaw, we stopped to dine at a small log-house in the woods, and had prepared our minds, from outward appearances, to put up with bad fare ; but, on entering, we saw on the table a wild turkey roasted, venison steaks, and a partridge-pie, all the product of the neighboring forest, besides a large jug of delicious milk, a luxury not commonly met with so far south.

The railway cars between Chehaw and Montgomery consisted, like those in the north, of a long apartment, with cross benches and a middle passage. There were many travelers, and among them one rustic, evidently in liquor, who put both his feet on one of the cushioned benches, and began to sing. The conductor told him to put his feet down, and afterward, on his repeating the offense, lifted them off. On his doing it a third time, the train was ordered to stop, and the man was told, in a peremptory tone, to get out immediately. He was a strong-built laborer, and would have been much more than a match for the conductor, had he resisted ; but he instantly complied, knowing, doubtless, that the officer's authority would be backed by the other passengers, if they were appealed to. We left him seated on the ground, many miles from any habitation, and with no prospect of another train passing for many a long hour. As we go southward, we see more cases of intoxication, and hear more swearing.

At one of the stations we saw a runaway slave, who had been caught and handcuffed ; the first I had fallen in with in irons in the course of the present journey. On seeing him, a New Englander, who had been with us in the stage before we reached Chehaw, began to hold forth on the miserable condition of the negroes in Alabama, Louisiana, Mississippi, and some other states which I had not yet visited. For a time I took for granted all he said of the sufferings of the colored race in those regions, the cruelty of the overseers, their opposition to the improvement and

education of the blacks, and especially to their conversion to Christianity. I began to shudder at what I was doomed to witness in the course of my further journeyings in the south and west. He was very intelligent, and so well informed on politics and political economy, that at first I thought myself fortunate in meeting with a man so competent to give me an unprejudiced opinion on matters of which he had been an eye-witness. At length, however, suspecting a disposition to exaggerate, and a party-feeling on the subject, I gradually led him to speak of districts with which I was already familiar, especially South Carolina and Georgia. I immediately discovered that there also he had every where seen the same horrors and misery. He went so far as to declare that the piny woods all around us were full of hundreds of runaways, who subsisted on venison and wild hogs; assured me that I had been deceived if I imagined that the colored men in the upper country, where they have mingled more with the whites, were more progressive; nor was it true that the Baptists and Methodists had been successful in making proselytes. Few planters, he affirmed, had any liking for their negroes; and, lastly, that a war with England about Oregon, unprincipled as would be the measure on the part of the democratic faction, would have at least its bright side, for it might put an end to slavery. "How in the world," asked I, "could it effect this object?" "England," he replied, "would declare all the slaves in the south free, and thus cripple her enemy by promoting a servile war. The negroes would rise, and although, no doubt, there would be a great loss of life and property, the south would nevertheless be a gainer by ridding herself of this most vicious and impoverishing institution." This man had talked to me so rationally on a variety of topics so long as he was restrained by the company of southern fellow-passengers from entering on the exciting question of slavery, that I now became extremely curious to know what business had brought him to the south, and made him a traveler there for several years. I was told by the conductor that he was "a wrecker;" and I learnt, in explanation of the term, that he was a commercial agent, and partner of a northern house which had great connections in the south. To

him had been assigned the unenviable task, in those times of bankruptcy and repudiation which followed the financial crisis of 1839-40, of seeking out and recovering bad debts, or of seeing what could be saved out of the wreck of insolvent firms or the estates of bankrupt planters. He had come, therefore, into contact with many adventurers who had been overtrading, and speculators who had grown unscrupulous, when tried by pecuniary difficulties. Every year, on revisiting the free states, he had contrasted their progress with the condition of the south, which by comparison seemed absolutely stationary. His thoughts had been perpetually directed to the economical and moral evils of slavery, especially its injuriousness to the fortunes and characters of that class of the white aristocracy with which he had most to do. In short, he had seen what was bad in the system through the magnifying and distorting medium of his own pecuniary losses, and had imbibed a strong anti-negro feeling, which he endeavored to conceal from himself, under the cloak of a love of freedom and progress. While he was inveighing against the cruelty of slavery, he had evidently discovered no remedy for the mischief but one, the hope of which he confessedly cherished, for he was ready to precipitate measures which would cause the Africans to suffer that fate which the aboriginal Indians have experienced throughout the Union.

When I inquired if, in reality, there were hundreds of runaway slaves in the woods, every one laughed at the idea. As a general rule, they said, the negroes are well fed, and, when they are so, will very rarely attempt to escape unless they have committed some crime: even when some punishment is hanging over them, they are more afraid of hunger than of a whipping.

Although we had now penetrated into regions where the schoolmaster has not been much abroad, we observe that the railway cars are every where attended by news-boys, who, in some places, are carried on a whole stage, walking up and down "the middle aisle" of the long car. Usually, however, at each station, they, and others who sell apples and biscuits, may be seen calculating the exact speed at which it is safe to jump off, and taking, with the utmost coolness, a few cents in change a moment before

they know that the rate acquired by the train will be dangerous. I never witnessed an accident, but as the locomotive usually runs only fifteen miles an hour, and is some time before it reaches half that pace, the urchins are not hurried as they would be in England. One of them was calling out, in the midst of the pine-barren between Columbus and Chehaw, "A novel, by Paul le Koch, the Bulwer of France, for twenty-five cents—all the go!—more popular than the Wandering Jew," &c. Newspapers for a penny or two-pence are bought freely by the passengers; and, having purchased them at random wherever we went in the northern, middle, southern, and western states, I came to the conclusion that the press of the United States is quite as respectable as our own. In the present crisis the greater number of prints condemn the war party, expose their motives, and do justice to the equitable offers of the English ministry in regard to Oregon. A large portion of almost every paper is devoted to literary extracts, to novels, tales, travels, and often more serious works. Some of them are specially devoted to particular religious sects, and nearly all of this class are against war. There are also some "temperance," and, in the north, "anti-slavery" papers.

We at length arrived at Montgomery, on the river Alabama, where I staid a few days to examine the geology of the neighborhood. From the high ground near the town there is a distant view of the hills of the granitic region around Wetumpka. But the banks of the river at Montgomery are composed of enormous beds of unconsolidated gravel, thirty feet thick, alternating with red clay and sand, which I at first supposed to be tertiary, from their resemblance to strata near Macon and Augusta in Georgia. The fossil shells, however, of the accompanying marls (*Inoceramus* and *Rostellaria arenarum*), soon convinced me that they belonged to the cretaceous formation. About three miles south of the town there is a broad zone of calcareous marl, constituting what is called the prairie, or cane-brake country, bare of natural wood, and where there is so great a want of water, that it was at first difficult for settlers to establish themselves upon it, until, by aid of the Artesian auger, they obtained an abundant supply

from a depth of 300, and often 500 feet, derived from the underlying gravelly and sandy beds. Farther from the outcrop of these gravelly beds borings have been made 800 feet deep without success. The temperature of the water was found to increase in proportion to the depth of the wells. A proprietor told me he had found it very difficult to get trees to grow on the prairie land, but he had succeeded, with great care, in rearing a few mulberries.

The common name for the marlite, of which this treeless soil is composed, is "rotten limestone." I found many lumps on the surface, much resembling white chalk, and containing shells of the genera, *Inoceramus*, *Baculite*, *Ammonite*, *Hippurite*, and that well-known fossil of the English chalk, *Ostrea vesicularis*.

In the market-place of Montgomery, I saw an auctioneer selling slaves, and calling out, as I passed, "Going for 300 dollars." The next day another auctioneer was selling horses in the same place. Nearly the same set of negroes, men, women, and boys, neatly dressed, were paraded there, day after day. I was glad to find that some settlers from the north, who had resided here many years, were annoyed at the publicity of this exhibition. Such traffic, they say, might as well be carried on quietly in a room. Another resident, who had come from Kentucky, was forming a party, who desire to introduce into Alabama a law, like one now in force in Kentucky, that no negroes shall henceforth be imported. By that statute, the increase of slaves has, he says, been checked. A case had lately occurred, of a dealer who tried to evade the law by bringing forty slaves into Kentucky, and narrowly escaped being fined 600 dollars for each, but had the ingenuity to get off by pretending that he was ignorant of the prohibition, and was merely passing through with them to Louisiana. "By allowing none to come in, while so many are emigrating to the west and Texas, we may hope," he said, "very soon to grow white."

Every evening, at nine o'clock, a great bell, or curfew, tolls in the market-place of Montgomery, after which no colored man is permitted to be abroad without a pass. This custom has, I understand, continued ever since some formidable insurrections,

which happened many years ago, in Virginia and elsewhere. I was glad to find that the Episcopal clergyman at Montgomery had just established a Sunday school for the negroes. I also hear that a party in this church, already comprising a majority of the clergy, are desirous that the negro congregations should be represented in their triennial conventions, which would be an important step toward raising the black race to a footing of equality with the whites. In these times when many here are entertaining a hostile feeling toward Great Britain, and when the government is lending itself to the excitement, I find the ministers of the Episcopal Church peculiarly free from such a spirit, and cherishing a desire for peace and a friendly disposition toward the English. The Methodists had just been holding a protracted meeting in Montgomery, and such is the effect of sympathy and of the spirit of competition, that the religious excitement had spread to all the other sects.

CHAPTER XXIII.

Voyage from Montgomery to Mobile.—Description of a large River Steamer.—Shipping of Cotton at Bluffs.—Fossils collected at Landings.—Collision of Steamer with the Boughs of Trees.—Story of a German Stewardess.—Emigration of Stephanists from Saxony.—Perpetuation of Stephanist and Mormon Doctrines.—Distinct Table for Colored and White Passengers.—Landing at Claiborne by Torchlight.—Fossil Shells.

Wednesday, Jan. 28, 1846.—THE steamer Amaranth was lying at the bluff at Montgomery on the Alabama River, and was advertised to sail for Mobile, a navigation of more than 300 miles, at ten o'clock in the morning. From information obtained here, I had determined to follow up my geological inquiries by going next to Tuscaloosa, on the Black Warrior River, about 100 miles distant by land, in a northwesterly direction. Every one agreed, however, that it was better for me to go 800 miles by water, half of it against the stream, instead of taking the direct road; so I determined to go first to Mobile, due south, and then up the Tombeckee to the capital of Alabama, being assured that I should gain, both in time and money, by this great detour. Should I attempt the straight road at this season, no one could insure my making two miles an hour, so tenaciously does the marlite of the cretaceous formation, when it is wet, hold the carriage wheels which sink into it.

Accustomed to the punctuality of northern steamers, we got down with our luggage to the landing at the hour appointed, but were told they were not ready. I re-examined a good geological section in the bluff, till a friend came to me, and regretted I had come down to the boat so early, for perhaps she might not sail till the next day. I was much annoyed at this intelligence, although I had been forewarned that much less value was set on time in the southern states than in the north. At length we went on board, and, having engaged a good private cabin, made up our minds to read and write there, and consider it as our inn.

It was the first of these magnificent southern river boats we had seen, fitted up for the two-fold purpose of carrying as many bales of cotton as can be heaped upon them without their sinking, and taking in as many passengers as can enjoy the luxuries which southern manners and a hot climate require, especially spacious cabins, abundance of fresh air, and protection from the heat of the sun. We afterward saw many larger steam vessels, and some of them fitted up in finer style, but none which made such an impression on our minds as the *Amaranth*. A vessel of such dimensions makes a grand appearance in a river so narrow as the Alabama at Montgomery; whereas, if she were a third longer, she would be comparatively insignificant on the Mississippi. The principal cabins run the whole length of the ship on a deck above that on which the machinery is placed, and where the cotton is piled up. This upper deck is chiefly occupied with a handsome saloon, about 200 feet long, the ladies' cabin at one end, opening into it with folding doors. Sofas, rocking-chairs, tables, and a stove are placed in this room, which is lighted by windows from above. On each side of it is a row of sleeping apartments, each communicating by one door with the saloon, while the other leads out to the guard, as they call it, a long balcony or gallery, covered with a shade or verandah, which passes round the whole boat. The second class, or deck passengers, sleep where they can on the lower floor, where, besides the engine and the cotton, there are prodigious heaps of wood, which are devoured with marvelous rapidity by the furnace, and are as often restored at the different landings, a set of negroes being purposely hired for that work.

These steamers, notwithstanding their size, draw very little water, for they are constructed for rivers which rise and fall very rapidly. They can not quite realize the boast of a western captain, "that he could sail wherever it was damp;" but I was assured that some of them could float in two feet water. The high-pressure steam escapes into the air, by a succession of explosions alternately from the pipes of the two engines. It is a most unearthly sound, like that of some huge monster gasping for breath; and when they clear the boilers of the sediment collected

from the river-water, it is done by a loud and protracted discharge of steam, which reminded us of the frightful noise made by the steam gun exhibited at the Adelaide Gallery in London. Were it not for the power derived from the high-pressure principle, of blowing out from the boilers the deposit collected in them, the muddiness of the American rivers would soon clog the machinery. Every stranger who has heard of fatal accidents by the bursting of boilers believes, the first time he hears this tremendous noise, that it is all over with him, and is surprised to see that his companions evince no alarm. Habit soon reconciled us to the sound ; and I was amused afterward to observe that the wild birds perched on the trees which overhung the river, looked on with indifference while the paddle-wheels were splashing in the water, and the steam-pipes puffing and gasping loud enough to be heard many miles off.

After we had been on board a great part of the day, we at length got under weigh in the afternoon ; but what was my surprise when I actually discovered that we were ascending the stream instead of sailing down toward Mobile. On asking the meaning of this proceeding, the mate told me, very coolly, that the captain had just heard of some cotton ready for exportation some miles above Montgomery. To this higher landing we repaired ; but news being sent that a rival steamboat was making her way up the river, the Amaranth set off down stream in good earnest, moving by aid of her powerful engines and the force of the mid-current with such velocity, that I could readily believe that 800 miles by river was shorter than 100 by land.

The pilot put into my hands a list of the landings on the Alabama River from Wetumpka to Mobile, no less than 200 of them in a distance of 434 miles. A small part only of these consisted of bluffs, or those points where the high land comes up to the river's edge—in other words, where there is no alluvial plain between the great stream and the higher country. These spots, being the only ones not liable to inundation, and which can therefore serve as inland ports when the river is full, or when the largest boats can sail up and down, are of great importance in the inland navigation of the country. A proprietor whose farm

is thus advantageously situated, usually builds a warehouse, not only for storing up for embarkation the produce of his own land, but large enough to take in the cotton of his neighbors. A long and steeply-inclined plane is cut in the high bank, down which one heavy bale after another is made to slide. The negroes show great dexterity in guiding these heavy packages; but occasionally they turn over and over before reaching the deck of the boat, and sometimes, though rarely, run off the course and plunge into the river, where they float till recovered. Had I not been engaged in geological inquiries, I should probably have had my patience severely tried by such repeated stoppings at every river cliff; but it so happened that the captain always wanted to tarry at the precise points where alone any sections of the cretaceous and tertiary strata were visible, and was often obliged to wait long enough to enable me to make a tolerably extensive collection of the most characteristic fossils. In the present instance—and I shall have by-and-by to mention other similar ones—Captain Bragdon was not only courteous, but perfectly understood, and entered into my pursuits, and had himself collected organic remains for a friend in the college of Louisville, Kentucky; so that while the cotton or wood were taking on board, he would often assist me in my labors. Were it not for one serious drawback, a cruise in a cotton steamer would be the paradise of geologists. Unfortunately, in the season when the water is high, and when the facilities of locomotion are greatest, the base of every bluff is many feet, and sometimes fathoms, under water, and the lower portion of a series of horizontal strata is thus entirely concealed from view. The bluffs which I first examined consisted of a marlite divided into horizontal layers as regular as those of the lias of Europe, and which might have been taken for lias but for the included fossils, which prove them to belong to the cretaceous formation. At Centerport these unctuous marls or calcareous clays are called by the people soap-stone, and form cliffs 150 feet in perpendicular height, in which, as well as at Selma, I collected the large *Gryphæa costata* and the *Ostrea falcata*, more than one species of *Inoceramus*, and other characteristic fossil shells. At White Bluff, where the blue marlite whitens

when exposed to the air, a fine range of precipices covered with wood forms a picturesque feature in the scenery ; but I obtained the richest harvest of cretaceous fossils far below, at a landing called Prairie Bluff.

The banks of the Alabama, like those of the Savannah and Altamaha rivers, are fringed with canes, over which usually towers the deciduous cypress, covered with much pendent moss. The mistletoe enlivens the boughs of several trees, still out of leaf, and now and then, through an opening in the thicket bordering the river, the evergreen pine-forest appears in the back-ground. Some of the largest trees on the banks are sycamores (*Platanus occidentalis*), called button-wood, one of which I measured, and found it to be eighteen feet in circumference. The old bark is continually peeling off, and the new is as white as if the trunk of the tree had been painted.

When it was growing dusk, and nearly all had retired to their cabins, and some to their beds, we were startled by a loud crash, as if parts of the woodwork of the steamer were giving way over our heads. At the same moment a shower of broken glass came rattling down on the floor of the cabin. As I expected to land in the course of the night at Claiborne, I had not taken off my clothes, so I rushed immediately on deck, and learnt from the captain that there was no danger. I then went down to tell the passengers, especially the women, who were naturally in no small alarm, that all was safe. I found them, in great consternation, crowded together at the door of the ladies' cabin, several mothers with children in their arms. When I returned to see what had happened, a most singular and novel scene presented itself. Crash after crash of broken spars and the ringing of shattered window-glasses were still heard, and the confusion and noise were indescribable. "Don't be alarmed ; we have only got among the trees," said the captain. This, I found, was no uncommon occurrence when these enormous vessels are sweeping down at full speed in the flood season. Strange as it may seem, the higher the waters rise the narrower is the river channel. It is true that the adjoining swamps and low lands are inundated far and wide ; but the steamers must all pass between two rows of tall trees

which adorn the opposite banks, and as the branches of these table trees stretch half way over the stream, the boat, when the river has risen forty or sixty feet, must steer between them. In the dark, when they are going at the rate of sixteen miles an hour or more, and the bends are numerous, a slight miscalculation carries the woodwork of the great cabin in among the heads of the trees. In this predicament I found the *Amaranth* when I got on deck. Many a strong bough had pierced right through the cabin windows on one side, throwing down the lights, and smashing the wooden balustrade and the roof of the long gallery, and tearing the canvas awning from the verandah. The engine had been backed, or its motion reversed, but the steamer, held fast by the trees, was swinging round with the force of the current. A large body of men were plying their axes freely, not only cutting off boughs, but treating with no respect the framework of the cabin itself. I could not help feeling thankful that no branch had obtruded itself into our berths. At length we got off, and the carpenters and glaziers set to work immediately to make repairs.

The evening before this adventure we had been sitting for some hours enjoying the privacy of our own state-room, from the windows of which we had a good view of the river's bank, when at length my wife had thought it polite to visit the ladies' cabin, as they might otherwise think her unsociable. She found there a young Irish milliner who had come out from the county of Monaghan, and was settled at Selma, one of the towns on this river, where she said she was getting on extremely well. There was also a cracker family, consisting of a squalling child and its two parents, who were "moving to the Washita river in Louisiana." The young mother was smoking a pipe, which her husband, a rough-looking back-woodsman, had politely lighted for her. As this practice was against the regulations, my wife joined the other ladies in remonstrating, and she immediately went out to smoke in the open air on the guard. I had been before amused by seeing a girl, about nine years old, employed, by way of imitating her elders, in smoking a paper cigar on the deck, and a mother, after suckling an infant of two years, give it some tobacco to chew.

Another inmate of the ladies' cabin was a German stewardess, who soon found out that my wife understood her mother tongue, and, being in great want of sympathy, poured out her tale of suffering in the New World with the simplicity of character and unreservedness of her countrywomen. Seven years ago she had been a happy and contented peasant at Chemnitz in Saxony, one of a united family of Lutherans, when she was persuaded by a priest to embrace the opinions of Martin Stephan, a preacher of Dresden, who taught that all theological study should be confined to the Bible ; that literature and the fine arts, being of human origin and worldly in their nature, ought to be despised ; that no one could enjoy freedom of conscience in Germany ; and that the only path to salvation was to follow him, and emigrate to North America. He himself was to be their temporal and spiritual chief, and to him they were to deliver up all their property. In November, 1838, 700 victims of this impostor embarked from Bremen, including six pastors and four schoolmasters. One of the transports, the *Amelia*, carrying about sixty emigrants, including children, a crazy old ship, was never heard of again, and doubtless foundered on the Atlantic. The other carried Stephan and the rest of his followers to New Orleans, from whence they ascended the Mississippi, and founded a settlement, called Wittenberg, on a rich, aguish flat, bordering the Missouri, above St. Louis. Here one-fourth of their number were swept off by fever, and Stephan, who had deserted a wife and nine children in Germany, was detected carrying on a licentious intercourse with some of the women of the new community. Before, however, this scandal became notorious, he contrived to make off with all the money which had been intrusted to him to buy land for the new colony. Hanne Röttgen, the young woman who related this story, went, as soon as she recovered from the ague, to St. Louis, her eyes having at length been opened, like those of many other Stephanists, to the fraud of which they had been the dupes. She was immediately employed to attend a hospital filled with numbers of her poor country people of both sexes, who had been scalded by the bursting of the boiler of a large steam-boat. After witnessing the terrible sufferings and death of not a few of these

emigrants, she had engaged herself as stewardess in several vessels, and at length in the *Amaranth*. "But what became of Stephan?" asked my wife. "He escaped entirely," she said, "for you know, madam, there is no law in this country as there is in Saxony; but for all that, this is the land for the poor to thrive in. They pay me twenty dollars a month, and I am saving money fast; for, though home-sick, I can not, after all my follies, return and throw myself penniless on my relations." Here she began to shed tears and to be much affected, wondering whether her mother was still alive. She had written to ask her forgiveness, as she had been her darling, and in spite of her prayers and entreaties had left her almost heart-broken. "I thought it my duty to go; for how should we poor peasants not be deceived when so many of our clergy were led astray by the cunning of that artful man? I have written to my two sisters to tell them how bitterly I repent, and to ask them to pardon me."

When I afterward talked of this adventure in a steamer on the Mississippi, a fellow traveler exclaimed, "But would you believe it, there are still many Stephanists?" "Why not," said I, "are there not also many thousand Mormons? The fraud of Stephan was not more transparent than that of Joseph Smith or his vision, and the story he related so circumstantially of records engraven on metallic plates, shining like gold, which were delivered to him by the angel of the Lord on the 22d day of September, 1827."

Are we then to despair of the progress of the human mind in inquiries in which it must ever take the deepest interest, because in a land where there are so many schools, and so many millions of readers, a free press, and religious toleration, it is so hard to extinguish a belief in the grossest impostures? By no means—in the doctrines taught by Stephan and Smith there was a mixture of some fiction with much truth; they adopted nearly all the highest truths of theology common to the prevailing religions of the world, with the addition of nearly all which Christians believe. In each sect the difficulty consists in clearing away a greater or less amount of human error and invention from the divine truths which they obscure or conceal. The multitude are

taught by their spiritual guides in three-fourths of Christendom, that they are not to inquire for themselves. Even of the Protestant minority, who profess that it is their right and duty to exercise their own judgment, how many are there who annex the condition "*provided* they arrive at the conclusions to which the Church has come, without which they cannot be saved!" What more would a Stephanist or a Mormon preacher ask, than the privilege of borrowing and inculcating these maxims?—and how, if the use of them be freely granted, and they have motives for perpetuating some peculiar sectarian dogmas, is the delusion ever to end?

In a southern steamer abundant opportunities are afforded of witnessing the inconveniences arising out of the singular relation subsisting between the negroes, whether free or slave, and the white race. The succession of breakfasts, dinners, and suppers entailed by it appears endless. In a northern boat, after the passengers and officers of the ship have dined, the few servants who waited on them have their meal; but here we had five distinct repasts set out, one after the other. First, the cabin passengers dine; then come the white nurses, children, and officers of the ship; thirdly, the deck passengers, being white, answering to our steerage; fourthly, the white waiters, waited upon by colored men; fifthly, colored passengers, free or slave, and colored waiters. It sometimes happens that a free negro who has made a good deal of money is on board; he must wait till all the white aristocracy, including the waiters, are served, and then take his turn with the lowest of the blacks. To a European this exclusiveness seems the more unnatural and offensive in the southern states, because they make louder professions even than the northerners of democratic principles and love of equality. I must do them the justice, however, to admit, that they are willing to carry out their principles to great lengths when the white race alone is concerned. I heard of a newly-arrived Irish ditcher at Chehaw, who was astonished when invited to sit down at table with his employer, a proprietor in the neighborhood, who thought it necessary to recognize him as an equal. On one occasion when I visited a lawyer at his country-house in Alabama—one accus-

tomed to the best society of a large city, and the ladies of whose family were refined and cultivated—he felt it incumbent on him, to my great discomfiture, to invite the driver of my gig, a half-caste Indian, who traveled without any change of clothes, to sit down with us at table. He was of a dark shade, but the blood was Indian not African, and he was therefore one of the southern aristocracy. The man was modest and unobtrusive, and scarcely spoke; but it need scarcely be said, that his presence checked the freedom of conversation, and I was glad when his duties in the stable called him away.

In the course of the night we were informed that the Amaranth had reached Claiborne. Here we found a flight of wooden steps, like a ladder, leading up the nearly perpendicular bluff, which was 150 feet high. By the side of these steps was a framework of wood, forming the inclined plane down which the cotton bales were lowered by ropes. Captain Bragdon politely gave his arm to my wife, and two negroes preceded us with blazing torches of pine-wood, throwing their light on the bright shining leaves of several splendid magnolias which covered the steep. We were followed by a long train of negroes, each carrying some article of our baggage. Having ascended the steps, we came to a flat terrace, covered with grass, the first green sward we had seen for many weeks, and found there a small, quiet inn, where we resolved to spend some days, to make a collection of the fossil tertiary shells, so well known to geologists as abounding in the strata of this cliff. About 400 species, belonging to the Eocene formation, derived from this classic ground, have already been named, and they agree, some of them specifically, and a much greater number in their generic forms, with the fossils of the middle division of the deposits of the same age of London and Hampshire.*

The remains of the zeuglodon have been also found by Mr. Hale in this cliff; but, although I met with many leaves of terrestrial plants, I could neither obtain here, nor in any part of the United States, a single bone of any terrestrial quadruped, although

* They correspond with the middle or Bracklesham series of Prestwich's triple division. See "Quart. Journ. of Geol. Soc." vol. iii. May, 1847.

we know that many of that class inhabited Europe at this period. That some of these may be discovered in America, I can hardly doubt ; but the fact is worthy of remark, as connected with the weight due to negative evidence. When strata have been formed far from land, so as to afford few, if any, indications of land plants, we must not look for indications of air-breathing quadrupeds, nor infer their non-existence, if it be so difficult to discover them even at Claiborne, where the land at the period of the deposition of the marine strata, can not have been far distant.*

* Since writing the above, I hear that Mr. Hale, of Mobile, has met with some bones of land quadrupeds in these strata. For remarks on the strata at Claiborne, see a paper by the author, "Quart. Journ. of Geol. Society of London," vol. iv. p. 10, June, 1848.

CHAPTER XXIV.

Claiborne, Alabama.—Movers to Texas.—State Debts and Liabilities.—Lending money to half-settled States.—Rumors of war with England.—Macon, Alabama.—Sale of Slaves.—Drunkenness in Alabama.—Laws against Dueling.—Jealousy of Wealth.—Emigration to the West.—Democratic Equality of Whites.—Skeleton of Fossil Whale or Zeuglodon.—Voyage to Mobile.

THE morning after our arrival at Claiborne, we found at the inn, a family of "movers" on their way to Texas, sitting in the verandah enjoying the warm sunshine after a shower of rain. At this season, January 29th, the thermometer stood at 80° Fahrenheit in the shade, and the air was as balmy as on an English summer day. The green sward was covered with an elegant flower, the *Houstonia serpyllifolia*, different from the *H. cerulia*, so common in the New England meadows. Before the house stood a row of Pride-of-India trees (*Melia azedarach*), laden with bunches of yellow berries. I had been often told by the negroes that the American robin (*Turdus migratorius*) "got drunk" on this fruit, and we had now an opportunity of witnessing its narcotic properties; for we saw some children playing with one of these birds before the house, having caught it after it had been eating freely of the berries. My wife seeing that the robin was in no small danger of perishing, bought it of the children for some sugar-plums, and it soon revived in our room, and flew out of the window. In the evening we enjoyed a sight of one of those glorious sunsets, the beauty of which in these latitudes is so striking, when the clouds and sky are lighted up with streaks of brilliant red, yellow, and green, which, if a painter should represent faithfully, might seem as exaggerated and gaudy as would the colors of an American forest in autumn when compared with European woods.

The movers, who were going to Texas, had come down 200 miles from the upper country of Alabama, and were waiting for some

others of their kindred who were to follow with their heavy wagons. One of these families is carrying away no less than forty negroes, and the cheerfulness with which these slaves are going, they know not where, with their owners, notwithstanding their usual dislike to quit the place they have been brought up in, shows a strong bond of union between the master and "his people." In the last fifteen months 1300 whites, and twice that number of slaves, have quitted Alabama for Texas and Arkansas, and they tell me that Monroe County has lost 1500 inhabitants. "Much capital," said one of my informants, "is leaving this state, and no wonder; for if we remain here, we are reduced to the alternative of high taxes to pay the interest of money so improvidently borrowed from England, or to suffer the disgrace of repudiation, which would be doubly shameful, because the money was received in hard cash, and lent out, often rashly, by the state, to farmers for agricultural improvements. Besides," he added, "all the expenses of Government were in reality defrayed during several years by borrowed money, and the burthen of the debt thrown on posterity. The facility with which your English capitalists, in 1821, lent their cash to a state from which the Indians were not yet expelled, without reflecting on the migratory nature of the white population, is astonishing! The planters who got grants of your money, and spent it, have nearly all of them moved off and settled beyond the Mississippi.

"First, our Legislature negotiates a loan; then borrows to pay the interest of it; then discovers, after some years, that five out of the sixteen millions lent to us have evaporated. Our democrats then stigmatize those who vote for direct taxes to redeem their pledges as 'the high taxation men.' Possibly the capital and interest may eventually be made good, but there is some risk at least of a suspension of payment. At this moment the state is selling land forfeited by those to whom portions of the borrowed money were lent on mortgage, but the value of property thus forced into the market, is greatly depreciated."

Although, since my departure in 1846, Alabama has not repudiated, I was struck with the warning here conveyed against lending money to a new and half-formed community, where every-

thing is fluctuating and on the move—a state from which the Indians are only just retreating, and where few whites ever continue to reside three years in one place—where thousands are going with their negroes to Louisiana, Texas, or Arkansas—where even the County Court Houses and State Capitol are on the move, the Court House of Clarke county, for example, just shifted from Clarkesville to Macon, and the seat of legislature about to be transferred from Tuscaloosa to Montgomery. In the midst of such instability, a feeling of nationality, or state pride, can not easily be fostered. Nevertheless, the resources, both mineral and agricultural, of so vast a territory as Alabama, a fifth larger in area than the whole of England proper, may enable them, with moderate economy, to overcome all their difficulties.

Often was the question put to us, “Are you moving?” But at the small tavern at Claiborne it was supposed that I might be the Methodist minister whom they were expecting to come from the north, to preach a trial sermon. Two Alabamans, who, as I afterward learnt, were under this persuasion, were talking beside me of the chances of a war with England, and praised the British ministers for their offer of mediation. They condemned the folly of the Government at Washington for not accepting it, and agreed that the trade of Mobile would suffer seriously, if they came to blows with the English. “Calhoun,” said one of them, “has pronounced in favor of peace; but they say that the Governor-general of Canada is spending a mint of money on fortifications.” “It is satisfactory,” replied his companion, “to think that we have not yet spent a dollar on preparations; yet I doubt not, if we had to fight, that the English would get the worst of it.” “Yes,” said his friend, “we have whipped them twice, and should whip them a third time.”

I am bound to state, that never once, where I was known to be an Englishman, were any similar speeches, uncourteous in their tone toward my country, uttered in my hearing.

On the table of the inn at Claiborne, I found a book entitled “Walsh’s Appeal from the Judgment of Great Britain,” in which all the provocations given to the Americans by English

travelers, and the daily and periodical press of Great Britain, were brought together in one view. It is at least instructive, as showing that a disposition to run down our transatlantic brethren was quite as marked, and perhaps even more conspicuous, before any of the states had repudiated, than after the financial crisis of 1841. So long as such an unfriendly and disparaging tone is encouraged, England does well to keep up a larger military force in Canada, and a larger navy than would otherwise be called for. It is only to be regretted that the Chancellor of the Exchequer can not set down as a separate item, the charge for indulging in anti-American prejudices, for it is possible that John Bull, patient as he is of taxation, might doubt whether the luxury was worth its cost. When the landlord saw me making an extract from Walsh, he begged me to accept the book; the second occasion in this tour in which mine host had pressed me to take a volume out of his library, which he had seen me reading with interest.

There is a considerable uniformity in the scale of charges in the country inns in the southern states. Great hotels in large cities are more expensive, and small inns in out-of-the-way places, where there were few comforts, considerably cheaper. We never made any bargains, and observed that the bill was always equitably adjusted according to the accommodation provided.

From Claiborne we crossed the Alabama River, and were hospitably received by Mr. Blount, to whom I had a letter of introduction from Mr. Hamilton Couper. While my wife staid with Mrs. Blount at Woodlands, he took me in his carriage through the forest, to the county town of Macon, where he had business as a magistrate. Macon (Alabama) happened to lie directly in my way to Clarkesville, where I wished to examine the geology of the region where the fossil skeletons of the gigantic zeuglodon had been procured. The district we passed through was situated in the fork of the Alabama and Tombeckbee rivers, where the aboriginal forest was only broken here and there by a few clearings. To travel with an accomplished and agreeable resident proprietor, who could entirely sympathize with my feelings and opinions, in a district so recently deserted by the Indians,

was no small advantage. When I got to Macon, my attention was forcibly called to the newness of things, by my friend's pointing out to me the ground where there had been a bloody fight with the Choctaws and Chickasaws, and I was told how many Indians had been slaughtered there, and how the present clerk of the Circuit Court was the last survivor of those who had won the battle. The memory of General Jackson is quite idolized here. It was enough for him to give public notice in the papers that he should have great pleasure in meeting his friends at a given point on a given day, and there was sure to be a muster of several hundred settlers, armed with rifles, and prepared for a desperate fight with 5000 or 7000 Indians.

At Macon I was fortunate enough to meet with Mr. William Pickett, a friend of Mr. Blount's, who, after returning from the wars in Texas, had most actively aided Mr. Koch in digging up the skeleton of the fossil whale, or zeuglodon, near Clarkesville. As I was anxious to know the true position of that remarkable fossil, and to ascertain how much of it had been obtained in a single locality, I gladly accepted Mr. Pickett's offer, to act as guide in this excursion. On repairing to the stable for the horse destined to draw our vehicle, we were met with a singular piece of intelligence. The stable-boy who had groomed it in the morning was "up for sale." Without his assistance we could not start, for this boy had the key of the harness-room. So I determined to go to the auction, where I found that a sale of land and negroes was going on, in consequence of the state having foreclosed one of those mortgages, before alluded to, on which public money borrowed from European capitalists had been lent by the state, for agricultural improvements. I first saw an old man sold for 150 dollars; then a boy, seventeen years old, knocked down for 535 dollars, on which a bystander remarked to me, "They are selling well to-day." Next came on the young man in whose immediate release I was more especially interested. He stepped forward, hat in hand, with an easy, natural air, seeming to be very indifferent to the scene around him, while the auctioneer began to describe him as a fine griff (which means three parts black), twenty-four years old, and having many su-

perior qualities, on which he enlarged in detail. There was a sharp bidding, which lasted only a few minutes, when he was sold for 675 dollars. Mr. Pickett immediately asked him to get ready our horse, and, as he came away with us, began to joke with him, and told him "they have bid a hundred dollars more for you than I would have given;" to which he replied, very complacently, "My master, who has had the hire of me for three years, knew better than to let any one outbid him." I discovered, in short, that he had gone to the sale with the full conviction that the person whom he had been serving was determined to buy him in, so that his mind was quite at ease, and the price offered for him had made him feel well satisfied with himself.

I witnessed no mal-treatment of slaves in this state, but drunkenness prevails to such a degree among their owners, that I can not doubt that the power they exercise must often be fearfully abused. In the morning the proprietor of the house where I lodged was intoxicated, yet taking fresh drams when I left him, and evidently thinking me somewhat unpolite when I declined to join him. In the afternoon, when I inquired at the house of a German settler, whether I could see some fossil bones discovered on his plantation, I was told that he was not at home; in fact, that he had not returned the night before, and was supposed to be lying somewhere drunk in the woods, his wife having set out in search of him in one direction, and his sister in another. In the Congress at Washington I had seen one of the representatives of this state, the worse for liquor, on his legs in the House, and I afterward heard of his being killed in a brawl in Alabama; yet every one here speaks of the great reform which the temperance movement has made, it being no longer an offense to decline taking a dram with your host.

When the conversation at Macon turned on dueling, I remarked to one of the lawyers, that a new bill had just been passed by the State of Mississippi, inflicting political disfranchisement as a penalty on every one concerned, whether, as first or second, in a duel. He laughed, and said, "We have a similar statute here, but it is nugatory, for the forfeited rights are always restored by the Legislature, as a matter of course, if the

offenders can prove that there was no unfair play in the fight." Notwithstanding this assertion, such enactments are not without their significance, and I believe that the example of New England and the progress of civilization is rapidly changing the tone of public opinion in regard to this barbarous practice. Soon after I left Macon, the news reached us of a fatal duel at Richmond, in Virginia, between two newspaper editors, one of whom, in the prime of life, and leaving a family dependent on him, was killed; and where the coroner's jury had given a verdict of murder, although the survivor was afterward acquitted. The newspaper comments on this tragedy, even in some of the southern states, were admirable. The following extract may be taken as an example:—"Mr. P——, a man of fifty years' experience, had been called a coward by a young man, Mr. Thomas R——. This touched his honor, which must be vindicated by putting his duty as a son, a father, a citizen, a Christian, and a man at stake. The point to be proved by being murdered, was that Tom R——'s opinion was incorrect, and that Mr. P—— was a man of honor and of courage. Mr. P—— is dead. Did his conduct prove that he was a brave or wise man? Is his reputation better, or is it worse for all this? If he could rise from the dead, and appear again in the streets of Richmond, would he be counted more a man of courage or honor, than if he had never taken the least notice of T. R—— or his opinion? Mr. R—— lives and has his opinion still, and other people have also their opinion of him," &c.

I heard many anecdotes, when associating with small proprietors in Alabama, which convinced me that envy has a much ranker growth among the aristocratic democracy of a newly settled slave state than in any part of New England which I visited. I can scarcely conceive the ostracism of wealth or superior attainments being carried farther. Let a gentleman who has made a fortune at the bar, in Mobile or elsewhere, settle in some retired part of the newly cleared country, his fences are pulled down, and his cattle left to stray in the woods, and various depredations committed, not by thieves, for none of his property is carried away, but by neighbors who, knowing nothing of

him personally, have a vulgar jealousy of his riches, and take for granted that his pride must be great in proportion. In a recent election for Clarke county, the popular candidate admitted the upright character and high qualifications of his opponent, an old friend of his own, and simply dwelt on his riches as a sufficient ground for distrust. "A rich man," he said, "can not sympathize with the poor." Even the anecdotes I heard, which may have been mere inventions, convinced me how intense was this feeling. One, who had for some time held a seat in the Legislature finding himself in a new canvass deserted by many of his former supporters, observed that he had always voted strictly according to his instructions. "Do you think," answered a former partisan, "that they would vote for you, after your daughter came to the ball in them fixings?" His daughter, in fact, having been at Mobile, had had a dress made there with *flounces* according to the newest Parisian fashion, and she had thus sided, as it were, with the aristocracy of the city, setting itself up above the democracy of the pine woods. In the new settlements there the small proprietors, or farmers, are keenly jealous of thriving lawyers, merchants, and capitalists. One of the candidates for a county in Alabama confessed to me that he had thought it good policy to go every where on foot when soliciting votes, though he could have commanded a horse, and the distances were great. That the young lady, whose "fixings" I have alluded to, had been ambitiously in the fashion, I make no doubt; for my wife found that the cost of making up a dress at Mobile was twenty dollars, or four times the ordinary London price! The material costs about the same as in London or Paris, At New Orleans the charge for making a gown is equally high.

I often rejoiced, in this excursion, that we had brought no servants with us from England, so strong is the prejudice here against what they term a white body-servant. Besides, it would be unreasonable to expect any one, who is not riding his own hobby, to rough it in the backwoods. In many houses I hesitated to ask for water or towels, for fear of giving offense, although the yeoman with whom I lodged for the night allowed me to pay a moderate charge for my accommodation. Nor could I venture to beg any one to rub a thick coat of mud off

my boots or trowsers, lest I should be thought to reflect on the members of the family, who had no idea of indulging in such refinements themselves. I could have dispensed cheerfully with milk, butter, and other such luxuries ; but I felt much the want of a private bed-room. Very soon, however, I came to regard it as no small privilege to be allowed to have even a bed to myself. On one occasion, when my host had humored my whims so far in regard to privacy, I felt almost ashamed to see, in consequence, a similar sized bed in the same room, occupied by my companion and two others. When I related these inconveniences afterward to an Episcopal clergyman, he told me that the bishop and some of his clergy, when they travel through these woods in summer, and the lawyers, when on the circuit, or canvassing for votes at elections, have, in addition to these privations, to endure the bites of countless musquitos, fleas, and bugs, so that I had great reason to congratulate myself that it was now so cold. Moreover, there are parties of emigrants in some of these woods, where women delicately brought up, accustomed to be waited on, and with infants at the breast, may now be seen on their way to Texas, camping out, although the ground within their tent is often soaked with heavy rain. "If you were here in the hot season," said another, "the exuberant growth of the creepers and briars would render many paths in the woods, through which you now pass freely, impracticable, and venomous snakes would make the forest dangerous."

Calling on a proprietor to beg him to show me some fossil bones, he finished by offering me his estate for sale at 3500 dollars. He said he had been settled there for twenty years with his wife, longer than any one else in the whole country. He had no children ; and when I expressed wonder that he could leave, at his advanced age, a farm which he had reclaimed from the wilderness, and improved so much, he answered, "I hope to feel more at home in Texas, for all my old neighbors have gone there, and new people have taken their place here."

The uncertainty of the cotton crops, and the sudden fluctuations in the value of cotton from year to year, have been the ruin of many, and have turned almost every landowner into a mer-

chant and speculator. The maize, or Indian corn, appears to be almost as precarious a crop, for this year it has entirely failed in many places, owing to the intense summer heat. I passed some mills in which the grain, cob, and husk were all ground up together for the cattle and hogs, and they are said to thrive more on this mixture than on the grain alone.

The different stages of civilization to which families have attained, who live here on terms of the strictest equality, is often amusing to a stranger, but must be intolerable to some of those settlers who have been driven by their losses from the more advanced districts of Virginia and South Carolina, having to begin the world again. Sometimes, in the morning, my host would be of the humblest class of "crackers," or some low, illiterate German or Irish emigrants, the wife sitting with a pipe in her mouth, doing no work and reading no books. In the evening, I came to a neighbor, whose library was well stored with works of French and English authors, and whose first question to me was, "Pray tell me, who do you really think is the author of the *Vestiges of Creation*?" If it is difficult in Europe, in the country far from towns, to select society on a principle of congeniality of taste and feeling, the reader may conceive what must be the control of geographical circumstances here, exaggerated by ultra-democratic notions of equality and the pride of race. Nevertheless, these regions will probably bear no unfavorable comparison with such parts of our colonies, in Canada, the Cape, or Australia, as have been settled for an equally short term of years, and I am bound to say, that I passed my time agreeably and profitably in Alabama, for every one, as I have usually found in newly peopled districts, was hospitable and obliging to a stranger. Instead of the ignorant wonder, very commonly expressed in out-of-the-way districts of England, France, or Italy, at travelers who devote money and time to a search for fossil bones and shells, each planter seemed to vie with another in his anxiety to give me information in regard to the precise spots where organic remains had been discovered. Many were curious to learn my opinion as to the kind of animal to which the huge vertebræ, against which their plows sometimes strike, may have belonged. The

magnitude, indeed, and solidity of these relics of the colossal zeuglodon, are such as might well excite the astonishment of the most indifferent. Dr. Buckley informed me that on the estate of Judge Creagh, which I visited, he had assisted in digging out one skeleton, where the vertebral column, almost unbroken, extended to the length of seventy feet, and Dr. Emmons afterward showed me the greater part of this skeleton in the Museum of Albany, New York. On the same plantation, part of another backbone, fifty feet long, was dug up, and a third was met with at no great distance. Before I left Alabama, I had obtained evidence of so many localities of similar fossils, chiefly between Macon and Clarkesville, a distance of ten miles, that I concluded they must have belonged to at least forty distinct individuals.

I visited, with Mr. Pickett, the exact spot where he and Mr. Koch disinterred a portion of the skeleton afterward exhibited in New York under the name of *Hydrarchos*, or "the Water-king." The bones were imbedded in a calcareous marly stratum of the Eocene formation, and I observed in it many casts of the chambers of a large nautilus, which were at first mistaken by Koch for the paddles of the huge animal. Portions of the vertebral column, exhibited by him, in 1845, at New York and Boston, were procured in Washington County, fifteen miles distant in a direct line from this place, where the head was discovered.* Some single vertebræ, which I found here, were so huge and so impregnated with carbonate of lime, that I could not lift them from the ground without an effort. Professor Jeffries Wyman was the first who clearly pointed out that the bones, of which the factitious skeleton called *Hydrarchos* was made up, must have belonged to different individuals. They were in different stages of ossification, he said, some adult, others immature, a state of things never combined in one and the same individual. Mr. Owen had previously maintained, that the animal was not reptilian, but cetacean, because each tooth was furnished with double roots, implanted in corresponding double sockets. After my return from America, a nearly entire skull of the zeuglodon was found by Mr. S. F. Holmes and Professor L. R.

* See "American Jour. of Science," New Series, vol. i. p. 312.

Gibbes, of Charleston, S. C., and it was found to have the double occipital condyles, only met with in mammals, and the convoluted tympanic bones which are characteristic of cetaceans, so that the real nature of this remarkable extinct species of the whale tribe has now been placed beyond all doubt.

Feb. 5.—On my return from this excursion, I rejoined my wife at Mr. Blount's, and we then went back to the inn at Claiborne to wait for a steamer bound for Mobile. The first large vessel which touched for a moment at the landing, came up the river from that city, and stopped to know if there were any passengers. The answer was, "No, what news?" To which they replied, "Cotton up one eighth—no war." They were off in an instant, and, a few hours later, when it was dark, another large vessel was hailed coming down stream. We were glad to find that it was the *Amaranth*, commanded by our old friend Captain Bragdon, who had sailed up and down more than 800 miles, in the interval since we saw him. Once more we descended the steep cliff, on the slope of which we had spent many pleasant hours, gathering hundreds of beautifully preserved shells, and saw it illuminated by a blaze of torch-light.

Between Claiborne and Mobile, there are about 100 miles of river navigation, our course being nearly due south. About half-way, we passed, in the night, the junction of the Tombeckbee and Alabama rivers, and, in the morning, saw in all directions a low flat country, which continued till we reached the metropolis of Alabama.

CHAPTER XXV.

Voyage from Mobile to Tuscaloosa.—Visit to the Coal-Field of Alabama.—Its Agreement in Age with the ancient Coal of Europe.—Absenteeism in Southern States.—Progress of Negroes.—Unthriftiness of Slave-Labor.—University of Tuscaloosa.—Churches.—Bankruptcies.—Judges and Law Courts.—Geology on the Tombeckbee River.—Artesian Wells.—Limestone Bluff of St. Stephen's.—Negro shot by Overseer.—Involuntary Efforts of the Whites to civilize the Negroes.—New Statute in Georgia against Black Mechanics.—The Effects of speedy Emancipation and the free Competition of White and Black Laborers considered.

Feb. 8, 1846.—THE Tuscaloosa steamer was just ready to sail the next morning for Mobile, up the great western tributary of the Alabama, called the Tombeckbee (or more familiarly “the Bigby”); I determined, therefore, to embark in her for the capital of the state, about 400 miles distant by water to the north, where I wished to explore the coal-field in which the coal used for gas and fuel at Mobile is procured, and to ascertain its geological age. Our steamer was 170 feet long, and made about ten miles an hour against the stream. She carried stores of all kinds to the upper country, but was not heavily laden; and, on her return, is to bring down a large freight of cotton. By means of the high-pressure principle and the horizontal movement of the piston, she draws only a few feet of water, notwithstanding her great length. These steamers never appear to such advantage as when stemming an adverse current, for the boat can then be steered with more precision, and less time is lost at the landings; at each of these they can go up direct to the bank, whereas, in descending, they have to turn round and re-ascend the stream before they can stop. There were also rafts laden with huge piles of wood ready to be taken in tow at different points, the logs being thrown on board by our negroes, while the steamer was going on at full speed. The empty raft is then turned adrift, and is easily piloted down the stream by two men, a ma-

noeuvre which could not be practiced when vessels are going in the opposite direction. All the chairs in the cabin of the Tuscaloosa were so constructed as to be capable of floating, and acting as life-preservers—a useful precaution on a river, whatever may be thought of such safeguards in an ocean steamer.

The river Tombeckbee was so high that the trees of both banks seemed to be growing in a lake. Before dark, we came to the limestone bluff at St. Stephen's, more than sixty miles due north of Mobile, and nearly 150 miles by the windings of the river. The tide is still slightly perceptible, even at this distance from the sea, and the water never rises during a flood more than five or six feet above its ordinary level; whereas, higher up, at Demopolis, the extreme rise is not less than fifty feet, and at Tuscaloosa, sixty-nine feet. At the latter place, indeed, we found the waters so high, that the falls were converted into mere rapids. The magnificent scale of the navigation on these southern rivers in the rainy season, contrasts remarkably with the want of similar facilities of water communication in Texas and the more western countries bordering the gulf of Mexico. We admired the canes on the borders of the river between Tuscaloosa and Demopolis, some of which I found to be thirty feet high. Whether this magnificent reed, which is said sometimes to grow forty feet high, is a distinct species, or merely a variety of *Miegia macrosperma*, which I had seen from six to ten feet high, as far north as Kentucky and North Carolina, botanists are not yet agreed.

Tuscaloosa is situated, like Augusta, Milledgeville, and Columbus, at the falls of a river, though, in this instance, the falls do not occur, as usual, at the junction of the granitic rocks, with the tertiary or cretaceous strata, but at the point where the latter first meet the carboniferous formation. The lower beds of the horizontal cretaceous series in contact with the inclined coal-measures, consist of gravel, some of the quartzose pebbles being as large as hens' eggs, and they look like an ancient beach, as if the cretaceous sea had terminated here, or shingle had been accumulated near a shore.

There is a flourishing college at Tuscaloosa, standing upon a

hill 450 feet above the level of the sea. Here I was welcomed by the professor of chemistry, Mr. Brumby, who had the kindness to set out immediately with me (Feb. 10) to examine the coal-fields lying immediately north of this place. Starting in a northeasterly direction, we first entered a hilly country formed of sandstone, grit, and shale of the coal formation, precisely like the strata in which coal occurs in England. These hills were covered with long-leaved pines, and the large proportion they bear to the hard wood is said to have been increased by the Indian practice of burning the grass; the bark of the oak and other kinds of hard wood being more combustible, and more easily injured by fire, than that of the fir tribe. Every where the young seedlings of the long-leaved pine were coming up in such numbers that one might have supposed the ground to have been sown with them; and I was reminded how rarely we see similar self-sown firs in English plantations. When we had gone about twenty miles northeast of Tuscaloosa, we came to a higher country, where nearly all the pines disappeared, and were replaced by oak, hickory, sumach, gum-trees, sassafras, and many others. In some clearings here, as in Georgia and the Carolinas, the quantity or cordage of wood fit for charcoal produced in thirty years by the new growth, is said, from its greater density, to have equaled the wood contained in the aboriginal forest.

Near the banks of the Black Warrior River, we examined several open quarries of coal, where the edges of the beds had been dug into by different proprietors, no regular mining operations having as yet been attempted. Even at the outcrop the coal is of excellent quality, and highly bituminous, and I soon satisfied myself that the strata were not of the age of the Richmond coal before described,* but were as ancient as that of the Alleghany Hills, or of Western Virginia. In the beds of black shale covering each coal-seam, were impressions of fossil plants, precisely similar to those occurring in the ancient coal-measures of Europe and America. Among these we found more than one species of *Calamite*, several ferns of the genera *Sphenopteris* and *Neuropteris*, the trunks of *Lepidodendron* and *Sigilaria*, the stems and

* Ante, vol. i. p. 214.

leaves of *Asterophyllite*, and in other beds the characteristic root called *Stigmaria*, not uncommon.*

According to Professor Brumby, this coal-field of the Warrior River is ninety miles long from north to south, and from ten to thirty miles in breadth, and includes in it some coal-seams not less than ten feet thick. It forms a southern prolongation of the great Appalachian coal-field, with which I was unacquainted when I compiled my map, published in 1845, of the geology of North America.† Its geographical situation is peculiarly interesting; for, being situated in lat. $33^{\circ} 10'$ north, it constitutes at present the extreme southern limit to which the ancient carboniferous vegetation has been traced in the northern hemisphere, whether on the east or west side of the Atlantic.

Continuing our route into the upland country, we entered about thirty-three miles N.E. of Tuscaloosa, a region called Rooke's Valley, where rich beds of ironstone and limestone bid fair, from their proximity to the coal, to become one day a source of great mineral wealth. At present the country has been suffered to retrograde, and the population to grow less numerous than it was twenty years ago, owing to migrations to Louisiana and Texas, and partly to the unthriftiness of slave labor.

We traveled in a carriage with two horses, and could advance but a few miles a day, so execrable and often dangerous was the state of the roads. Occasionally we had to get out and call at a farm-house to ask the proprietor's leave to take down his snake fence, to avoid a deep mud-hole in the road. Our vehicle was then driven over a stubble field of Indian corn, at the end of which we made our exit, some fifty yards on, by pulling down another part of the fence. In both places the labor of rebuilding the fence, which consists simply of poles loosely placed together and not nailed, was entailed upon us, and caused no small delay.

One of the evils, tending greatly to retard the progress of the southern states, is absenteeism, which is scarcely known in the North. The cheapness of land, caused by such rapid emigration

* See "Quart. Journ. of Geol. Soc.," vol. ii. p. 278, and for a list of the plants, by Mr. C. J. F. Bunbury, p. 282. *ibid.*

† See "Travels," &c. vol. ii.

to the South and West, and the frequent sales of the estates of insolvents, tempts planters to buy more land than they can manage themselves, which they must therefore give in charge to overseers. Accordingly, much of the property in Alabama belongs to rich Carolinians, and some wealthy slave-owners of Alabama have estates in Mississippi. With a view of checking the increase of these "pluralities," a tax has recently been imposed on absentees. In Alabama, as in Georgia, I found that the colored people were more intelligent in the upper country, and I listened with satisfaction to complaints of their setting themselves up, and being less content than formerly with their lot. That men of color can sometimes make large fortunes in trade, was proved to me by a fact which came accidentally to my knowledge. One of them, by standing security for a white man, had lately lost no less than 17,000 dollars, or 3400 guineas; yet he was still prospering, and kept a store, and, being a free man would willingly have sent his son to the college of Tuscaloosa, had he not been prevented by the prejudices of a white aristocracy, ostentatiously boastful of its love of equality. In consequence of similar impediments, many thriving artisans of the colored race remain uneducated, and are obliged to have white men to write for them and collect their debts; and I found that many cabinet-makers, carpenters, builders, and other mechanics, earning high wages, who, in New England, would send their sons to college, do not contribute here even to the maintenance of common schools, their children not being permitted by law to learn to read and write. I can not believe, however, that this state of things can endure many years, for I found that an excellent Sabbath school had been established by the Presbyterians in Tuscaloosa, for the children of negroes. There are two colored men in this town, who, having a dash of Indian as well as negro blood in their veins, have become the owners of slaves.

Frequent mention was made during our stay in Alabama, of a negro named Ellis, a blacksmith, who had taught himself Greek and Latin. He is now acquiring Hebrew, and I was sorry to hear that the Presbyterians contemplate sending him as a missionary to Liberia. If it were an object in the south to elevate

the blacks, he might be far more instrumental in forwarding the cause of civilization and Christianity by remaining at home, for the negroes like a preacher of their own race.

The colored domestic servants are treated with great indulgence at Tuscaloosa. One day some of them gave a supper to a large party of their friends in the house of a family which we visited, and they feasted their guests on roast turkeys, ice-creams, jellies, and cakes. Turkeys here cost only seventy-five cents, or about three shillings the couple, prepared for the table; the price of a wild turkey, an excellent bird, is twenty-five cents, or one shilling. After calculating the interest of the money laid out in the purchase of the slaves, and the price of their food, a lawyer undertook to show me that a negro cost less than an English servant; "but, as two blacks do the work of only one white, it is a mere delusion," he said, "to imagine that their labor is not dearer." It is usual, moreover, not to exact the whole of their time for domestic duties. I found a footman, for example, working on his own account as a bootmaker at spare hours, and another getting perquisites by blacking the students' shoes.

That slave labor is more expensive than free, is an opinion which is certainly gaining ground in the higher parts of Alabama, and is now professed openly by some northerners who have settled there. One of them said to me, "Half the population of the south is employed in seeing that the other half do their work, and they who do work, accomplish half what they might do under a better system." "We can not," said another, "raise capital enough for new cotton factories, because all our savings go to buy negroes, or, as has lately happened, to feed them, when the crop is deficient." A white bricklayer had lately gone from Tuscaloosa to serve an apprenticeship in his trade at Boston. He had been earning there $2\frac{1}{2}$ dollars a day, by laying 3000 bricks daily. A southern planter, who had previously been exceedingly boastful and proud of the strength of one of his negroes (who could, in fact, carry a much greater weight than this same white bricklayer), was at first incredulous when he heard of this feat, for his pattern slave could not lay more than 1000 bricks a day.

During my absence on the geological excursion above mention-

ed, through forests recently abandoned by the Indians, and where their paths may still be traced, I found that my wife had made many agreeable acquaintances at Tuscaloosa. Two of the ladies she had seen (New Englanders, who had married southerners) were reading the works of Schiller and Goethe in the original for their amusement. My companion, the Professor of Chemistry, was not the only one from whom I obtained much scientific information, and we enjoyed the pleasure, one clear night, of looking through a telescope recently sent from London, and were shown by Mr. Barnard, the teacher of astronomy, some double stars and southern constellations not visible in England.

The annual expense of a student in the University is 300 dollars, or sixty guineas a year, including board. A gentleman, whose family consisted of eight individuals, with eight negro servants, told me that he could not live respectably for less than 1700 dollars a year (340 guineas.) Yet he paid no less than 40 dollars, or eight guineas, a year, for a pew in the Presbyterian church, holding six persons, which will give some idea of the liberal support afforded, under the voluntary system, to the ministers of religion. Among the professors here, there are Baptists, Presbyterians, Episcopalians, and I was told of one that he was not a member of any church, but a regular attendant at the Baptist or Presbyterian meeting. On Sunday, we heard the Bishop of Alabama preach, the congregation here being reckoned the second in the state. The first is at Mobile, and there are about ten in all. The service was read by another clergymen, and as, according to the usual custom in America, there was no clerk, the Bishop read the responses and gave out the psalms, seeming to us, at first, to be performing the office of clerk. It often struck me as an advantage in the United States, that the responses are never read by an illiterate man, as happens not uncommonly in our country parishes, and the congregation joins in the service more earnestly when the part which properly belongs to them does not devolve on a regular functionary. A few days later, when I was on my way, in a steamer, to Mobile, I conversed with an Episcopal clergyman, a high churchman, whose profession I had recognized by the strictness of his costume. He told

me he meant to visit England, and, with that view, had for some months abstained entirely from the chewing of tobacco, having been told it would be considered a breach of good manners there. His physician, also, had assured him that this habit, which he had taken pains to acquire when a boy, because he thought it manly, though much against his natural taste, was injuring his health. He seemed to know the names of almost every bishop and dignitary of the English Church, their incomes and shades of opinion, and regretted that Archbishop Whately had taken such low ground in regard to the apostolic succession. "The bishop of this diocese," he said, "receives about 800*l.* a year, and has to pay his own traveling expenses, but in the older states the bishops have higher salaries." Episcopal clergymen usually receive about 500 dollars (or 100 guineas) in country parishes, and four times that sum in large towns, or even more. Upon the whole, he thought them well paid, in proportion to the average scale of fortunes in the United States, and he was convinced, that as the wealthiest class are so often Episcopalians, his church is a gainer in worldly advantages as well as spiritual influence, by being wholly unconnected with the state.

In the afternoon, the Presbyterian minister of Tuscaloosa delivered a good discourse on the necessity of a higher standard of honor in commercial affairs. Channing had said, that they who become insolvent by over-trading, often inflict more misery than highwaymen and thieves; and this preacher affirmed that for each hundred persons engaged in trade in Alabama, there had been ninety-seven bankruptcies. One of the citizens, who was scandalized at this assertion, afterward raised the question, whether it was true, and I asked if any one of the party could name a tradesman in their town who had not failed once in the last twenty years. They were only able to mention two.

I was surprised at the number of lawyers at Tuscaloosa who enjoy the title of Judge, and equally amused when the cause was explained to me. False notions of economy have from time to time induced the democracy to lower the salaries of the judges, especially in the inferior courts. The consequence has been, that as the state can no longer command the services of the best law-

yers, the bench has grown weaker than the bar, and the authority of judicial decisions has been impaired. Hence the increased number of appeals to the Supreme Court of the state now sitting at Tuscaloosa. Yet, in spite of this augmentation of business, the income of the judges in this court also has been lowered from 3000 to 2500 dollars; although lawyers in good practice in Mobile have been known to make 10,000 or 14,000 dollars a year. It is by no means uncommon, therefore, for one who has a large family, to give up the bench and return to the bar; but, in that case, the title of Judge is still given to him by courtesy, and is much prized, especially by northern men, who are willing to make a sacrifice for this honor, by serving a few years on the bench and then retiring from it.

I have before alluded to the deep ravines recently cut through incoherent strata in Georgia, after the natural wood has been felled.* One of these modern gulleys may now be seen intersecting most inconveniently the main street of Tuscaloosa, and several torrents are cutting their way backward through the "cretaceous" clay, sand, and gravel of the hill on which the Capitol stands. They even threaten in a few years to undermine that edifice. I had observed other recent ravines, from seventy to eighty feet deep, in the Eocene strata between Macon and Clarkesville (Alabama), where the forest had been felled a few years before.

On my way back from Tuscaloosa to Mobile, I had a good opportunity of examining the geological structure of the country, seeing various sections, first of the cretaceous, and then lower down of the tertiary strata. The great beds of gravel and sand above alluded to, forming the inferior part of the cretaceous series, might from their want of consolidation, be mistaken for much newer deposits, if their position on the Tombeckbee, as well as on the Alabama River at Montgomery, were not perfectly clear. They pass beneath the great marlite formation, full of cretaceous shells, which gives rise to the prairie soils before described,† as nearly destitute of natural wood, and crossing Alabama in an east and west direction. These I examined at Erie, at Demo-

* Ante, p. 28.

† Ante, p. 41.

polis, and at Arcola, where they contain hippurites and other characteristic fossils. The depth to which they have sunk Artesian wells through them in many places (between 500 and 1000 feet), is astonishing. One boring through blue marl and limestone at Erie, in Greene County, was 469 feet deep, and the well yielded 350 gallons of water per minute at the surface. The water rises forty feet above the surface, and can be made to reach fifty feet, though in diminished quantity. Here, as in Europe, the temperature of the earth's crust is found to increase as we descend, the water being sensibly warmer than that of the air, so much so that in cold weather it sends forth steam. Each new excavation at Erie robs the wells previously bored of part of their supply. The auger with which they perforate the soil is four inches in diameter, and the average cost of excavation sixty-two cents, or about 2s. 6*d.* per foot, for the whole depth of 469 feet. No solid rock has been pierced here, the strata consisting throughout of soft, horizontally stratified blue limestone. They have also pierced these same rocks, at a distance of three miles from Demopolis (a town situated at the junction of the Tombeckee and Black Warrior rivers), to the depth of 930 feet without gaining the water, yet they do not despair of success, as sand has just been reached.

At Arcola, the proprietor presented me with several cretaceous fossils, and some irregular tubular bodies, the origin of which he wished to have explained. I immediately recognized them as identical with the vitreous tubes found at Drigg, in Cumberland, in hills of shifting sand, which have been described and figured in the Transactions of the Geological Society of London.* They have a glazed and vitrified interior, and bodies of similar form and structure were first supposed by Saussure to have been due to the passage of lightning through sand, a theory now generally adopted.

If any geologist retains to this day the doctrine once so popular, that at remote periods marine deposits of contemporaneous origin were formed every where throughout the globe with the same mineral characters, he would do well to compare the suc-

* Vol. ii. p. 528, and vol. v. p. 617, 1st series.

cession of rocks on the Alabama River with those of the same date in England. If there were no fossils, he might suppose the lower cretaceous beds of loose gravel to be the newest tertiary, the main body of the chalk to be lias, and the soft limestone of St. Stephen's, which is tertiary, to be the representative of chalk. When I arrived at the last-mentioned rock, or the white calcareous bluff of St. Stephen's, it was quite dark, but Captain Lavargy, who commanded the vessel, was determined I should not be disappointed. He therefore said he would stop and take in a supply of wood at the place, and gave me a boat, with two negroes amply provided with torches of pine wood, which gave so much light that I was able to explore the cliff from one end to the other, and to collect many fossils. The bluff was more than 100 feet high, and in parts formed of an aggregate of corals resembling nummulites, but called, by A. D'Orbigny, orbitoides.

I had seen the same "orbitoidal" limestone in the interior of Clarke County, forming knolls, on which many cedars or junipers were growing, reminding me greatly of parts of the English South Downs, covered with yew trees or juniper, where the pure calcareous soil of the chalk reaches the surface.

When I looked down from the top of the precipice at St. Stephen's, the scene which presented itself was most picturesque. Near us was the great steamboat, throwing off a dense column of white vapor, and an active body of negroes throwing logs on board by torch-light. One of my companions had clambered with me, torch in hand, to the top of the bluff; the other was amusing himself in the boat below by holding another blazing torch under large festoons of Spanish moss, which hung from the boughs of a huge plane tree. These mossy streamers had at length been so dried up by the heat, that they took fire, and added to the brilliant illumination. My fellow passengers were asleep during this transaction, but congratulated me the next morning on having had the command of the vessel during the night.

On board the steamer were three gentlemen of respectable families and good standing in society, who had been ruined by their drunken habits. They had all been brought up to the bar, and two of them were married. One had become quite imbe-

cile ; and I saw the captain and clerk interfere to prevent him from taking more spirits. We heard many lamentations at the prevalence of this vice in Alabama, and were told of a skillful physician who had lost all his practice by giving way to intemperance. While one of the passengers was conversing with me on this subject, he called my attention to an overseer just coming on board, who, not long ago, had shot a negro, a ringleader in a conspiracy. The affair, he said, had not reached a desperate point, and might have been better managed, had he not been a passionate man. I was going to express my indignation at the idea of such an agent continuing to be intrusted with power, when I saw him approaching us. His countenance was by no means prepossessing, and I involuntarily withdrew. To my surprise, my companion, whose general opinions had pleased me much, greeted and shook hands with his acquaintance with apparent cordiality.

This adventure, and my meeting with the slave-stealer on board the "General Clinch," before related,* were the two cases which most shocked my feelings in the course of my present tour in Georgia and Alabama. To inquire into the condition of the negroes, and the evils arising out of the relation of master and slave, was not the object of my visit ; but when I afterward related to an abolitionist in Massachusetts, how little actual suffering had obtruded itself on my notice, he told me that great pains must have been taken by the planters to conceal from me the true state of things, while they had taken care to propitiate me by hospitable attentions. I was glad, however, to find my experience borne out by that of a Scotch weaver, William Thomson, of Stonehaven, who traveled in the years 1841-2 for his health in the southern states. He supported himself as he went along by manual labor, and lived on intimate terms with persons of a different class of society from those with whom I had most intercourse. On his return home he published a small book, in which he says, "It will appear, to those who knew my opinions on slavery before I visited America, that, like most others who can judge dispassionately, I have changed my opinion consider-

* Ante, vol. i. p. 232.

ably." He gives a detailed account of his adventures in the regions which I traversed in Alabama, Georgia, and many other states, and concludes by observing,—“After witnessing negro slavery in mostly all the slaveholding states,—having lived for weeks in cotton plantations, observing closely the actual condition of the negroes,—I can assert, without fear of contradiction from any man who has any knowledge of the subject, that I have never witnessed one-fifth of the real suffering that I have seen in manufacturing establishments in Great Britain.” In reference to another topic, he affirms “that the members of the same family of negroes are not so much scattered as are those of working men in Scotland, whose necessities compel them to separate at an age when the American slave is running about gathering health and strength.”*

I am aware that there is some danger, when one hears the philanthropist declaiming in terms of gross exaggeration on the horrors of slavery and the crimes of the planters, of being tempted by a spirit of contradiction, or rather by a love of justice, to counteract misrepresentation, by taking too favorable a view of the condition and prospects of the negroes. But there is another reason, also, which causes the traveler in the south to moderate his enthusiasm for emancipation. He is forced continually to think of the responsibility which would be incurred, if several millions of human beings were hastily set aside, like so many machines, by withdrawing from them suddenly the protection afforded by their present monopoly of labor. In the opening of the market freely to white competitors, before the race is more improved, consists their danger.

Yet, on taking a near view of the slave question, we are often thrown into opposite states of mind and feeling, according as the interests of the white or negro race happen, for the moment, to claim our sympathy. It is useless now to look back and wish, for the sake of civilization, that no Africans had ever crossed the Atlantic. Their number in the Union now exceeds three millions, and, as they have doubled in the last twenty-five years, we

* *Tradesman's Travels in the United States, &c., in the years 1840-42*, p. 182.

must expect, unless some plan can be devised to check their increase, that they will amount, before the close of this century, to twelve millions, by which time the white population will have augmented to eighty millions. Notwithstanding this increase of negroes, were it not for disturbing causes, to which I shall presently advert, I should cherish the most sanguine hopes of their future improvement and emancipation, and even their ultimate amalgamation and fusion with the whites, so highly has my estimate of their moral and intellectual capabilities been raised by what I have lately seen in Georgia and Alabama. Were it not for impediments which white competition and political ascendancy threaten to throw in the way of negro progress, the grand experiment might be fairly tried, of civilizing several millions of blacks, not by philanthropists, but by a steadier and surer agency—the involuntary efforts of several millions of whites. In spite of prejudice and fear, and in defiance of stringent laws enacted against education, three millions of a more enlightened and progressive race are brought into contact with an equal number of laborers lately in a savage state, and taken from a continent where the natives have proved themselves, for many thousand years, to be singularly unprogressive. Already their task-masters have taught them to speak, with more or less accuracy, one of the noblest of languages, to shake off many old superstitions, to acquire higher ideas of morality, and habits of neatness and cleanliness, and have converted thousands of them to Christianity. Many they have emancipated, and the rest are gradually approaching to the condition of the ancient serfs of Europe half a century or more before their bondage died out.

All this has been done at an enormous sacrifice of time and money; an expense, indeed, which all the governments of Europe and all the Christian missionaries, whether Romanist or Protestant, could never have effected in five centuries. Even in the few states which I have already visited since I crossed the Potomac, several hundred thousand whites of all ages, among whom the children are playing by no means the least effective part, are devoting themselves with greater or less activity to these involuntary educational exertions.

It had previously been imagined that an impassable gulf separated the two races ; but now it is proved that more than half that space can, in a few generations, be successfully passed over, and the humble negro of the coast of Guinea has shown himself to be one of the most imitative and improvable of human beings. Yet the experiment may still be defeated, not so much by the fanaticism of abolitionists, or the prejudices of those slave-owners who are called perpetualists, who maintain that slavery should be permanent, and that it is a blessing in itself to the negro, but by the jealousy of an unscrupulous democracy invested with political power. Of the imminent nature of this peril, I was never fully aware, until I was startled by the publication of an act passed by the Legislature of Georgia during my visit to that state, December 27th, 1845. The following is the preamble and one of the clauses :—

“An act to prohibit colored mechanics and masons, being slaves, or free persons of color, being mechanics or masons, from making contracts for the erection of buildings, or for the repair of buildings, and declaring the white person or persons directly or indirectly contracting with or employing them, as well as the master, employer, manager, or agent for said slave, or guardian for said free person of color, authorizing or permitting the same, guilty of a misdemeanor,” and prescribing punishment for the violation of this act.

“Section 1.—Be it enacted by the Senate and House of Representatives of the State of Georgia in General Assembly met, and it is hereby enacted by the authority of the same, That from and after the 1st day of February next, each and every white person who shall hereafter contract or bargain with any slave, mechanic, or mason, or free person of color, being a mechanic or mason, shall be liable to be indicted for a misdemeanor ; and, on conviction, to be fined, at the discretion of the Court, not exceeding two hundred dollars.”

Then follows another clause imposing the like penalties on the owners of slaves, or guardians of *free persons of color*, who authorize the contracts prohibited by this statute.

I may first observe, in regard to this disgraceful law, which

was only carried by a small majority in the Georgian Legislature, that it proves that not a few of the negro race have got on so well in the world in reputation and fortune, and in skill in certain arts, that it was worth while to legislate against them in order to keep them down, and prevent them from entering into successful rivalry with the whites. It confirms, therefore, most fully the impression which all I saw in Georgia had left on my mind, that the blacks are steadily rising in social importance in spite of slavery ; or, to speak more correctly, by aid of that institution, assuming, as it does, in proportion as the whites become civilized, a more and more mitigated form. In the next place I shall endeavor to explain to the English reader the real meaning of so extraordinary a decree. Mr. R. H. Wilde, formerly senator for Georgia, told me that he once knew a colored freeman who had been brought up as a saddler, and was a good workman. To his surprise he found him one day at Saratoga, in the State of New York, acting as servant at an hotel. " Could you not get higher wages," he inquired, " as a saddler ? " " Yes," answered he ; " but no sooner was I engaged by a ' boss,' than all the other workmen quitted." They did so, not because he was a slave, for he had long been emancipated, but because he was a negro. It is evident, therefore, that it requires in Georgia the force of a positive statute to deprive the negro, whether he be a freeman or slave, of those advantages from which, in a free state like New York, he is excluded, without any legislative interference.

I have heard apologists in the north endeavoring to account for the degraded position which the negroes hold, socially and politically, in the free states, by saying they belong to a race which is kept in a state of slavery in the south. But, if they really desired to accelerate emancipation, they would begin by setting an example to the southern states, and treating the black race with more respect and more on a footing of equality. I once heard some Irish workmen complain in New York, " that the niggers shut them out from all the easiest ways of getting a livelihood ; " and many white mechanics, who had emigrated from the north to the slave states, declared to me that every opening in their trades was closed to them, because black artisans were employed by their owners in preference. Hence, they are now using in Georgia the

power given to them by an exclusive franchise, to pass disabling statutes against the blacks, to prevent them from engaging in certain kinds of work. In several states, Virginia among others, I heard of strikes, where the white workmen bound themselves not to return to their employment until the master had discharged all his colored people. Such combinations will, no doubt, forward the substitution of white for negro labor, and may hasten the era of general emancipation. But if this measure be prematurely adopted, the negroes are a doomed race, and already their situation is most critical. I found a deep conviction prevailing in the minds of experienced slave-owners, of the injury which threatened them; and, more than once, in Kentucky and elsewhere, in answer to my suggestions, that the time for introducing free labor had come, they said, "I think so; we must *get rid* of the negroes." "Do you not think," said I, "if you could send them all away, that some parts of the country would be depopulated, seeing how unhealthy the low grounds are for the whites?" "Perhaps so," replied one planter, "but other regions would become more productive by way of compensation; the insalubrity of the Pontine marshes would be no excuse for negro slavery in Italy. All might end well," he added, "were it not that so many anti-slavery men in the north are as precipitate and impatient as if they believed, like the Millerites, that the world was coming to an end."

One of the most reasonable advocates of immediate emancipation whom I met with in the north, said to me, "You are like many of our politicians, who can look on one side only of a great question. Grant the possibility of these three millions of colored people, or even twelve millions of them fifty years hence, being capable of amalgamating with the whites, such a result might be to you perhaps, as a philanthropist or physiologist, a very interesting experiment; but would not the progress of the whites be retarded, and our race deteriorated, nearly in the same proportion as the negroes would gain? Why not consider the interests of the white race by hastening the abolition of slavery. The whites constitute nearly six-sevenths of our whole population. As a philanthropist, you are bound to look to the greatest good of the two races collectively, or the advantage of the whole population of the Union."

CHAPTER XXVI.

Return to Mobile.—Excursion to the Shores of the Gulf of Mexico.—View from Lighthouse.—Mouth of Alabama River.—Gnathodon inhabiting Brackish Water.—Banks of these Fossil Shells far Inland.—Miring of Cattle.—Yellow Fever at Mobile in 1839.—Fire in same Year.—Voyage from Mobile to New Orleans.—Movers to Texas.—Lake Pontchartrain.—Arrival at New Orleans.—St. Louis Hotel.—French Aspect of City.—Carnival.—Procession of Masks.

Feb. 21, 1846.—THERE had been some very cold weather in the beginning of the month in the upper country, the thermometer at Tuscaloosa having been down as low as 17° Fahr. ; yet, on our return to Mobile, we saw the signs of approaching spring, for on the banks of the Alabama river the deciduous cypress and cotton trees were putting out their leaves, and the beautiful scarlet seed-vessels of the red maple (*Acer Drummondii*) enlivened the woods.

Once more at Mobile, I was impatient to see, for the first time, the shores of the Gulf of Mexico, and therefore lost no time in making an excursion to the mouth of the Alabama River. I was fortunate in having as my companion the Rev. Dr. Hamilton, minister of the principal Presbyterian congregation, who was well acquainted with the natural history of this region. He drove me first to the lighthouse, where, from the top of the tower, we had a splendid view of the city to the north, and to the south the noble bay of Mobile, fourteen miles across. The keeper of the lighthouse looked sickly, which is not surprising, as he is living in a swamp in this region of malaria. It was his first year of residence, and the second year is said to be most trying to the constitution. The women, however, of his family, seemed healthy. We then went to the sea-side, two miles to the eastward, and found the waters of the bay smooth and unrippled, like an extensive lake, the woods coming down every where to its edge, and the live oaks and long-leaved pines, with the buck-eye and several

other trees just beginning to put forth their young leaves. As the most northern countries I had visited in Europe—Norway and Sweden—were characterized by fir trees mingled with birch, I was surprised to find the most southern spot I had yet seen, a plain only a few feet above the level of the sea, almost equally characterized by a predominance of pines. On the ground I observed a species of cactus, about one foot high, and the marshy spots were covered with the candleberry (*Myrica carolinensis*), resembling the species so common in the north, in the scent of its aromatic leaves, but thrice as high as I had seen it before. The most common plant in flower was the English chickweed (*Cerastium vulgare*), a truly cosmopolite species.

A prodigious quantity of drift timber, of all sizes, and in every stage of decomposition, lay stranded far and wide along the shore. Many of the trunks of the trees had been floated a thousand miles and more down the Mississippi and its tributaries, and, after escaping by one of the many mouths of the great river, had drifted one hundred and fifty miles eastward to this spot. The fact of their long immersion in salt water was sometimes proved by a dense coat of encrusting barnacles, the only marine shells we could find here, for the mollusks proper to this part of the bay are such as belong to fresh or brackish water, of the genera *Cyrena*, *Gnathodon*, and *Neritina*. Just before our visit, a north wind had been blowing and driving back the sea water for some days, and the bay was so freshened by the Alabama River pouring in at this season a full stream, that I could detect no brackish taste in the water. It is, in fact, so sweet here, that ships often resort to the spot to take in water. Yet there is a regular tide rising three feet every six hours, and, when the wind blows from the south, the waters are raised six or seven feet.

After walking over a large expanse of ripple-marked sands, we came to banks of mud, inhabited by the bivalve shell called *Gnathodon*, some of which we dug up alive from a depth of about two inches from the surface. This part of the bay of Mobile is now the most northern locality of this remarkable brackish-water genus, but dead shells of the same species are traced many miles inland, forming banks three or four feet thick. They are called

clams here in popular language, and, being thick and strong, afford a good material for road-making. From the same mud-bank we dug out a species of *Cyrena*, the only accompanying shell. In some places not far off, a *Neritina* is also met with. As a geologist, I was much interested by observing the manner in which these shells were living in the mud of the delta of the Alabama River. The deposits formed by the advance of this and other deltas along the northern shores of the Gulf of Mexico, will be hereafter characterized by such shells in a fossil state, just as, in the Pampas, Mr. Darwin and M. A. D'Orbigny found the brackish-water shell, called *Azara labiata*, marking far inland the position of ancient estuaries. And as, in South America, "the Pampean mud," described by Mr. Darwin,* is filled with the skeletons of the extinct *Megatherium*, *Toxodon*, and other strange mammalia, so in the modern delta of the Alabama, the quadrupeds now inhabiting the southern shores of the United States will hereafter be met with buried in the same assemblage of deposits of mud and sand as the *Gnathodon*. I was told that in a great morass which we saw near the lighthouse some cattle had lately perished, and for many days the turkey buzzards have been snatching parts of the dead carcasses out of the mud, watching their opportunity the moment the dogs, which are also preying on them, retire. Formerly the wolves used to prowl about these swamps in search of similar booty, tearing up portions of the mired cattle, and in this manner we may expect that, while some skeletons, which have sunk deep into the softer mud, may be preserved entire, the bones of others will be scattered about where the wolves have gnawed them, or birds of prey have picked off the flesh.

On our way back to the town, at places a mile and a half from the sea, I examined some large banks of fossil shells of the *Gnathodon*, lying as if they had been washed up by the waves at a time when the coast-line extended only thus far south. I also found that the city of Mobile itself was built upon a similar bed of shells, in which no specimens of the *Neritina* occurred; but I was told by Mr. Hale, that he has met with them in banks

* Geolog. Obs. on S. America (1846), p. 99.

much farther in the interior, and, as he truly remarked, they refute the theory which would refer such accumulations to the Indians, who, it is well known, were accustomed to feed on the *Gnathodon*. The distinct stratification seen in some of the heaps of shells and sand at Mobile, also satisfied me that they were thrown up by the action of water. Mr. Hale gave me a map, in which he had laid down the localities of these beds of fossil *Gnathodon*, some of which he has traced as far as twenty miles into the interior, the accumulations increasing in thickness in the most elevated and inland situations, and containing there an intermixture of the *Neritinæ* with the *Cyrena*, which last seems only to occur in the recent banks of mud and sand. Mr. Hale observes, "that the inland heaps of shells often rise so far above the level of the highest tides, that it seems difficult to account for their position simply by the advance of the delta, and without supposing that there has been a slight upheaval of the land."

In the gardens at Mobile there were jonquils and snowdrops in flower, and, for the first time, we saw that beautiful evergreen, the yellow jessamine (*Gelsemium sempervirens*), in full bloom, trailed along the wall of Dr. Hamilton's house. Its fragrance is delicious, more like that of our bind-weed than any other scent I could remember. It had not been injured by the late frost, although the thermometer at Mobile had been eight degrees below the freezing point.

The citizens are beginning to flatter themselves that the yellow fever has worn itself out at Mobile, because the hot season of 1845 was so healthy both here and at New Orleans. Some medical men, indeed, confessed to me, that as the wind blew for many weeks from the north, passing over the marshes north of the city during the summer, without giving rise to the usual epidemic, all their former theories as to the origin of the pestilence have been refuted. It may still hold true, that to induce the disease, three causes must concur, namely, heat, a moist ground, and a decaying vegetation; but it seems clear that all these may be present in their fullest intensity, and yet prove quite innocuous. The dangerous months are July, August, and September, and

great is the anxiety of those who then remain in the city. It is fearful to witness the struggle between the love of gain, tempting the merchant to continue at his post, and the terror of the plague, which causes him to stand always prepared for sudden flight. In 1839, such was the dismay, that only 3000 out of a population of 16,000 tarried behind in the city. Dr. Hamilton, one of those who staid, told me that he knew not a single family, a member of which was not attacked by the disease. Out of the 3000, 800 died. All the clergy remained faithful to their duties, and many of them perished.

The yellow fever is not the only scourge which has frequently devastated Mobile. I found it slowly recovering, like so many other American cities, from the ravages of a great fire, which, in 1839, laid the greater part of it in ashes. The fire broke out in so many places at once, as to give too much reason to suspect that it was the work of incendiaries seeking plunder.

Feb. 23.—The distance from Mobile to New Orleans is 175 miles by what is called the inland passage, or the channel between the islands and the main land. We paid five dollars, or one guinea each, for berths in the “James L. Day” steamer, which made about nine miles an hour. Being on the low pressure principle, she was so free from noise and vibration, that we could scarcely believe we were not in a sailing vessel. The stunning sounds and tremulous motions of the boats on the southern rivers are at first so distracting, that I often wondered we could sleep soundly in them. The “James L. Day” is 185 feet long, drawing now five and a half feet water, and only seven feet when fully freighted. We sailed out of the beautiful bay of Mobile in the evening, in the coldest month of the year, yet the air was warm, and there was a haze like that of a summer’s evening in England. Many gulls followed our ship, enticed by pieces of bread thrown out to them by the passengers, some of whom were displaying their skill in shooting the birds in mere wantonness. The stars were brilliant as the night came on, and we passed between the islands and main land, where the sea was as smooth as a lake.

On board were many “movers,” going to Texas with their

slaves. One of them confessed to me, that he had been eaten out of Alabama by his negroes. He had no idea where he was going, but after settling his family at Houston, he said he should look out for a square league of good land to be had cheap. Another passenger had, a few weeks before, returned from Texas, much disappointed, and was holding forth in disparagement of the country for its want of wood and water, declaring that none could thrive there, unless they came from the prairies of Illinois, and were inured to such privations. "Cotton," he said, "could only be raised on a few narrow strips of alluvial land near the rivers, and as these were not navigable by steamers, the crop, when raised, could not be carried to a market." He also comforted the mover with the assurance, "that there were swarms of buffalo flies to torment his horses, and sand flies to sting him and his family." To this the undismayed emigrant replied, "that when he first settled in Alabama, before the long grass and canes had been eaten down by his cattle, the insect pests were as great as they could be in Texas." He was, I found, one of those resolute pioneers of the wilderness, who, after building a log-house, clearing the forest, and improving some hundred acres of wild ground by years of labor, sells the farm, and migrates again to another part of the uncleared forest, repeating this operation three or four times in the course of his life, and, though constantly growing richer, never disposed to take his ease. In pursuing this singular vocation, they who go southward from Virginia to North and South Carolina, and thence to Georgia and Alabama, follow, as if by instinct, the corresponding zones of country. The inhabitants of the red soil of the granitic region keep to their oak and hickory, the "crackers" of the tertiary pine-barrens to their light-wood, and they of the newest geological formations in the sea-islands to their fish and oysters. On reaching Texas, they are all of them at fault, which will surprise no geologist who has read Ferdinand Roemer's account of the form which the cretaceous strata assume in that country, consisting of a hard, compact, siliceous limestone, which defies the decomposing action of the atmosphere, and forms table-lands of bare rock, so entirely unlike the marls, clay, and sands of the same age in Alabama.

On going down from the cabin to the lower deck, I found a slave-dealer with sixteen negroes to sell, most of them Virginians. I heard him decline an offer of 500 dollars for one of them, a price which he said he could have got for the man before he left his own state.

Next morning at daylight we found ourselves in Louisiana. We had already entered the large lagoon, called Lake Pontchartrain, by a narrow passage, and, having skirted its southern shore, had reached a point six miles north of New Orleans. Here we disembarked, and entered the cars of a railway built on piles, which conveyed us in less than an hour to the great city, passing over swamps in which the tall cypress, hung with Spanish moss, was flourishing, and below it numerous shrubs just bursting into leaf. In many gardens of the suburbs, the almond and peach trees were in full blossom. In some places the blue-leaved palmetto, and the leaves of a species of iris (*Iris cuprea*), were very abundant. We saw a tavern called the "Elysian Fields Coffee House," and some others with French inscriptions. There were also many houses with porte-cochères, high roofs, and volets, and many lamps suspended from ropes attached to tall posts on each side of the road, as in the French capital. We might indeed have fancied that we were approaching Paris, but for the negroes and mulattoes, and the large verandahs reminding us that the windows required protection from the sun's heat.

It was a pleasure to hear the French language spoken, and to have our thoughts recalled to the most civilized parts of Europe by the aspect of a city, forming so great a contrast to the innumerable new towns we had lately beheld. The foreign appearance, moreover, of the inhabitants, made me feel thankful that it was possible to roam freely and without hindrance over so large a continent,—no bureaus for examining and signing of passports, no fortifications, no drawbridges, no closing of gates at a fixed hour in the evening, no waiting till they are opened in the morning, no custom-houses separating one state from another, no overhauling of baggage by gens d'armes for the octroi; and yet as perfect a feeling of personal security as I ever felt in Germany or France.

The largest of the hotels, the St. Charles, being full, we obtained agreeable apartments at the St. Louis, in a part of the town where we heard French constantly spoken. Our rooms were fitted up in the French style, with muslin curtains and scarlet draperies. There was a finely-proportioned drawing-room, furnished à la Louis Quatorze, opening into a large dining-room with sliding doors, where the boarders and the "transient visitors," as they are called in the United States, met at meals. The mistress of the hotel, a widow, presided at dinner, and we talked French with her and some of the attendants; but most of the servants of the house were Irish or German. There was a beautiful ball-room, in which preparations were making for a grand masked ball, to be given the night after our arrival.

It was the last day of the Carnival. From the time we landed in New England to this hour, we seemed to have been in a country where all, whether rich or poor, were laboring from morning till night, without ever indulging in a holiday. I had sometimes thought that the national motto should be, "All work and no play." It was quite a novelty and a refreshing sight to see a whole population giving up their minds for a short season to amusement. There was a grand procession parading the streets, almost every one dressed in the most grotesque attire, troops of them on horseback, some in open carriages, with bands of music, and in a variety of costumes,—some as Indians, with feathers in their heads, and one, a jolly fat man, as Mardi Gras himself. All wore masks, and here and there in the crowd, or stationed in a balcony above, we saw persons armed with bags of flour, which they showered down copiously on any one who seemed particularly proud of his attire. The strangeness of the scene was not a little heightened by the blending of negroes, quadroons, and mulattoes in the crowd; and we were amused by observing the ludicrous surprise, mixed with contempt, of several unmasked, stiff, grave Anglo-Americans from the north, who were witnessing for the first time what seemed to them so much mummery and tom-foolery. One wagoner, coming out of a cross street, in his working-dress, drove his team of horses and vehicle heavily laden with cotton bales right through the proces-

sion, causing a long interruption. The crowd seemed determined to allow nothing to disturb their good humor; but although many of the wealthy Protestant citizens take part in the ceremony, this rude intrusion struck me as a kind of foreshadowing of coming events, emblematic of the violent shock which the invasion of the Anglo-Americans is about to give to the old *régime* of Louisiana. A gentleman told me that, being last year in Rome, he had not seen so many masks at the Carnival there; and, in spite of the increase of Protestants, he thought there had been quite as much "flour and fun" this year as usual. The proportion, however, of strict Romanists is not so great as formerly, and to-morrow, they say, when Lent begins, there will be an end of the trade in masks; yet the butchers will sell nearly as much meat as ever. During the Carnival, the greater part of the French population keep open house, especially in the country.

CHAPTER XXVII.

Catholic Cathedral, New Orleans.—French Opera.—Creole Ladies.—Quadroons.—Marriage of Whites with Quadroons.—St. Charles Theater.—English Pronunciation.—Duelist's Grave.—Ladies' Ordinary.—Procession of Fire Companies.—Boasted Salubrity of New Orleans.—Goods selling at Northern Prices.—Mr. Wilde.—Roman Law.—Shifting of Capital to Baton Rouge.—Debates in Houses of Legislature.—Convention and Revision of the Laws.—Policy of Periodical State Conventions.—Judges cashiered.—Limitation of their Term of Office.

New Orleans, February, 1846.—WALKING first over the most ancient part of the city, called the First Municipality, we entered the Place d'Armes, and saw on one side of the square the old Spanish Government House, and opposite to it the Cathedral, or principal Catholic church, both in an antique style of architecture, and therefore strikingly unlike any thing we had seen for many months. Entering the church, which is always open, we found persons on their knees, as in Catholic countries, although it was not Sunday, and an extremely handsome quadroon woman coming out.

In the evening we went to the French Opera, and were much pleased with the performance, the orchestra being the best in America. The audience were very quiet and orderly, which is said not to be always the case in some theaters here. The French creole ladies, many of them descended from Norman ancestors, and of pure unmixed blood, are very handsome. They were attired in Parisian fashion, not over dressed, usually not so thin as the generality of American women; their luxuriant hair tastefully arranged, fastened with ornamental pins, and adorned simply with a colored ribbon or a single flower. My wife learnt from one of them afterward, that they usually pay, by the month, a quadroon female hairdresser, a refinement in which the richest ladies in Boston would not think of indulging. The word creole is used in Louisiana to express a native-born American, whether

black or white, descended from old-world parents, for they would not call the aboriginal Indians creoles. It never means persons of mixed breed ; and the French or Spanish creoles here would shrink as much as a New Englander from intermarriage with one *tainted*, in the slightest degree, with African blood. The frequent alliances of the creoles, or Louisianians, of French extraction, with lawyers and merchants from the northern states, help to cement the ties which are every day binding more firmly together the distant parts of the Union. Both races may be improved by such connection, for the manners of the creole ladies are, for the most part, more refined ; and many a Louisianian might justly have felt indignant if he could have overheard a conceited young bachelor from the north telling me “how much they were preferred by the fair sex to the hard-drinking, gambling, horse-racing, cock-fighting, and tobacco-chewing southerners.” If the creoles have less depth of character, and are less striving and ambitious than the New Englanders, it must be no slight source of happiness to the former to be so content with present advantages. They seem to feel, far more than the Anglo-Saxons, that if riches be worth the winning, they are also worth enjoying.

The quadroons, or the offspring of the whites and mulattoes, sat in an upper tier of boxes appropriated to them, When they are rich, they hold a peculiar and very equivocal position in society. As children, they have often been sent to Paris for their education, and, being as capable of improvement as any whites, return with refined manners, and not unfrequently with more cultivated minds than the majority of those from whose society they are shut out. By the tyranny of caste they are driven, therefore, to form among themselves a select and exclusive set. Among other stories illustrating their social relation to the whites, we were told that a young man of the dominant race fell in love with a beautiful quadroon girl, who was so light-colored as to be scarcely distinguishable from one of pure breed. He found that, in order to render the marriage legal, he was required to swear that he himself had' negro blood in his veins, and, that he might conscientiously take the oath, he let some of the blood of his betrothed into his veins with a lancet. The

romance of this tale was, however, greatly diminished, although I fear that my inclination to believe in its truth was equally enhanced, when the additional circumstance was related, that the young lady was rich.

Some part of the feeling prevailing in New England, in regard to the immorality of New Orleans, may be set down to the fact of their theaters being open every Sunday evening, which is no indication whatever of a disregard of religion on the part of the Catholics. The latter might, with as much reason, reflect on the Protestants for not keeping the doors of their churches open on week-days. But as a great number of the young mercantile men who sojourn here are from the north, and separated from their families, they are naturally tempted to frequent the theaters on Sundays; and if they do so with a sense that they are violating propriety, or acting against what in their consciences they think right, the effect must be unfavorable to their moral character.

During our stay here we passed a delightful evening in the St. Charles theater, seeing Mr. and Mrs. Kean in the "Gamester" and in "The Follies of a Night." Her acting of Mrs. Beverley was perfection; every tone and gesture full of feeling, and always lady-like, never overwrought, in the most passionate parts. Charles Kean's acting, especially in Richard, has been eminently successful during his present tour in the United States.

While at New Orleans, Mrs. Kean told my wife she had been complimented on speaking English so well; and some wonder had been expressed that she never omitted or misplaced her h's. In like manner, during our tour in New England, some of the natives, on learning that we habitually resided in London, exclaimed that they had never heard us confound our v's and w's. "The Pickwick Papers" have been so universally read in this country, that it is natural the Americans should imagine Sam Weller's pronunciation to be a type of that usually spoken in the old country, at least in and about the metropolis. In their turn, the English retaliate amply on American travelers in the British Isles:—"You don't mean to say you are an American? Is it possible? I should never have discovered it, you speak English

so well!"—"Did you suppose that we had adopted some one of the Indian languages?"—"I really never thought about it; but it is wonderful to hear you talk like us!"

Looking into the shop-windows in New Orleans, we see much which reminds us of Paris, and abundance of articles manufactured in the northern states, but very few things characteristic of Louisiana. Among the latter I remarked, at a jeweler's, many alligators' teeth polished and as white as ivory, and set in silver for infants to wear round their necks to rub against their gums when cutting their teeth, in the same way as they use a coral in England.

The tombs in the cemeteries on the outskirts of the town are raised from the ground, in order that they may be above the swamps, and the coffins are placed in bins like those of a cellar. The water is seen standing on the soil at a lower level in many places; there are often flowers and shrubs round the tombs, by the side of walks made of shells of the *Gnathodon*. Over the grave of one recently killed in a duel was a tablet, with the inscription—"Mort, victime de l'honneur!" Should any one propose to set up a similar tribute to the memory of a duelist at Mount Auburn, near Boston, a sensation would be created which would manifest how widely different is the state of public opinion in New England from that in the "First Municipality."

Among the signs of the tacit recognition of an aristocracy in the large cities, is the manner in which persons of the richer and more refined classes associate together in the large hotels. There is one public table frequented by bachelors, commercial travelers, and gentlemen not accompanied by their wives and families, and a more expensive one, called the Ladies' Ordinary, at which ladies, their husbands, and gentlemen whom they invite, have their meals. Some persons who occupy a marked position in society, such as our friend the ex-senator, Mr. Wilde, often obtain leave by favor to frequent this ordinary; but the keepers of the hotels grant or decline the privilege, as they may think proper.

A few days after the Carnival we had another opportunity of seeing a grand procession of the natives, without masks. The corps of all the different companies of firemen turned out in their

uniform, drawing their engines dressed up with flowers, ribbons, and flags, and I never saw a finer set of young men. We could not help contrasting their healthy looks with the pale, sickly countenances of "the crackers," in the pine-woods of Georgia and Alabama, where we had been spending so many weeks. These men were almost all of them creoles, and thoroughly acclimatized; and I soon found that if I wished to ingratiate myself with natives or permanent settlers in this city, the less surprise I expressed at the robust aspect of these young creoles the better. The late Mr. Sydney Smith advised an English friend who was going to reside some years in Edinburgh to praise the climate:—"When you arrive there it may rain, snow, or blow for many days, and they will assure you they never knew such a season before. If you would be popular, declare you think it the most delightful climate in the world." When I first heard New Orleans commended for its salubrity, I could scarcely believe that my companions were in earnest, till a physician put into my hands a statistical table, recently published in a medical magazine, proving that in the year 1845 the mortality in the metropolis of Louisiana was 1·850, whereas that of Boston was 2·250, or, in other words, while the capital of Massachusetts lost 1 out of 44 inhabitants, New Orleans lost only 1 in 54; "yet the year 1845," said he, "was one of great heat, and when a wider area than usual was flooded by the river, and exposed to evaporation under a hot sun."

It appears that when New Orleans is empty in the summer—in other words, when all the strangers, about 40,000 in number, go into the country, and many of them to the north, fearing the yellow fever, the city still contains between 80,000 and 100,000 inhabitants, who never suffer from the dreaded disease, whether they be of European or African origin. If, therefore, it be fair to measure the salubrity of a district by its adaptation to the constitutions of natives rather than foreigners, the claim set up for superior healthiness may be less preposterous than at first it sounded to my ears. I asked an Irishman if the summer heat was intolerable. "You would have something else to think of in the hot months," said he, "for there is one set of musquitoes who

sting you all day, and when they go in toward dusk, another kind comes out and bites you all night."

The desertion of the city for five months by so many of the richer residents, causes the hotels, and the prices of almost every article in shops, to be very dear during the remainder of the year. "Goods selling at northern prices" is a common form of advertisement, showing how high is the usual cost of all things in this city. The Irish servants in the hotel assure us that they can not save, in spite of their high wages, for, whatever money they put by soon goes to pay the doctor's bill, during attacks of chill and fever.

Hearing that a Guide-book of New Orleans had been published, we wished to purchase a copy, although it was of somewhat ancient date for a city of rapid growth. The bookseller said that we must wait till he received some more copies from New York, for it appears that the printing even of books of local interest is done by presses 2000 miles distant. Their law reports are not printed here, and there is only one newspaper in the First Municipality, which I was told as very characteristic of the French race; for, in the Second Municipality, although so much newer, the Anglo-Americans have, during the last ten years, started ten newspapers.

We were very fortunate in finding our old friend, Mr. Richard Henry Wilde, residing in the same hotel, for he had lately established himself in New Orleans, and was practicing in the courts of civil law with success. The Roman law, originally introduced into the courts here by the first settlers, was afterward modified by the French, and assimilated to the Code Napoleon, and finally, by modern innovations, brought more and more into accordance with the common law of England. Texas, in her new constitution, and even some of the older states, those of New England not excepted, have borrowed several improvements from the Roman law. Among these is the securing to married women rights in property, real and personal, so as to protect them from the debts of their husbands, and enable them to dispose of their own property.

Mr. Wilde took me to the Houses of the Legislature, where a

discussion was going on as to the propriety of changing the seat of government from New Orleans to some other place in Louisiana, for it had been determined, though by a majority of one only, in a convention appointed for that purpose, that they should go somewhere else, to a place at least sixty miles distant from the metropolis. I remarked, that the accessibility of New Orleans was so great, and so many must be drawn to it by business, that the determination to seek out a new site for a capital, seemed to me incomprehensible. "You will wonder still more," he replied, "when I tell you, that when the convention had been some time at Baton Rouge to frame the new constitution, they thought it advisable to adjourn to New Orleans, where they could consult with lawyers who were attending the courts, and with the principal merchants, and where they might have access to good libraries, and be in daily communication by steam with all parts of the state. In short, they found that for the faithful discharge of their task, they stood in need of a great variety of information which they could obtain nowhere so readily as in the metropolis. Yet it seems never to have struck them that our future law-makers might, with equal profit to the state, derive knowledge from the same sources."

In the House of Representatives, English is spoken exclusively, but in the Senate many were addressing the House in French, and when they sat down an interpreter rose and repeated the whole speech over again in English. An orator was on his legs, maintaining that Baton Rouge had the best claims to become the future capital, a proposition soon afterward adopted by the majority. Another contended that Donaldsonville ought to be the place, as it would suit the convenience of 26,000 white male citizens, while Baton Rouge would only favor the interest of 12,000. This line of argument seemed to me to contain in it an implied censure on the abandonment of New Orleans, but that was no longer an open question. When I afterward saw the insignificant village of Donaldsonville, I could not help being diverted at the recollection of the inflated terms in which its future prospects had been dwelt upon. The speaker said, "He liked to lift the vail off the face of futurity and contemplate the

gigantic strides to wealth, population and power, which that city was destined to make ; he liked to behold it in imagination, as it will be in reality, built up from the bank of the river to the margin of the lake, sustaining and supporting a happy, industrious, and enterprising population of millions, and being at the same time the great emporium of the trade and commerce of the world."

Although I talked much with Louisianians of different classes in society, as to their reasons for changing the site of the capital, I never could satisfy myself that I had fathomed the truth, and suspect that a spirit of envy and antagonism of country against town lies more at the bottom of the measure than they were willing to confess, aggravated, perhaps, in this case, by the rivalry of two races. No one pretended that they wished to retreat to a village, from fear that the populace, or mob, of New Orleans might control the free action of the representative body. Some told me, that as their members received pay, they were desirous of taking away from them all temptations to protract the session, which the charms of a luxurious metropolis afforded. They also affirmed that, by living in so dear a place, their representatives acquired extravagant notions in regard to the expenditure of public money, and that they were exposed to the influence of rich merchants and capitalists, who gave them good dinners, and brought them round to their opinions.

I asked if a convention for remodeling the constitution had been called for. My informants were generally disposed to think that the time had arrived when such a re-cast of the old system had become unavoidable. The recurrence, they said, of such conventions every twenty-five or thirty years, might seem to European politicians to imply a wish to perpetuate an experimental state of things ; but where the population had quadrupled since the last convention—where thousands of emigrants had poured in from various states, the majority of them speaking a new language, and introducing a new code of laws, into the Second Municipality—where circumstances connected with their social, religious, political, and financial affairs had so altered—in a word, where they were unavoidably in a transition state, the best way of guarding against revolutionary movements was to

settle on some fixed periods for revising the constitution, and inquiring whether any organic changes were indispensable.

Among other violent proceedings, I found that the late convention had cashiered all the judges of the Supreme Court, although they had been appointed for life, or "*quamdiù se benè gesserint*," and with very high salaries. They were to have no retiring pensions, and this I remarked was an iniquity, as some of them had doubtless given up a lucrative practice on the faith of enjoying a seat on the bench for life. Some lawyers agreed that the measure was indefensible, and said they presumed that, in the end, the democratic party would elect all the judges annually, by universal suffrage. I met, however, with optimists who were ready to defend every act of the convention. Several of the judges, they said, were superannuated, and it would have been invidious to single them out, and force them to resign. It was better to dismiss the whole. "As for retiring pensions, we hold, with your Jeremy Bentham, that no man can acquire a vested right in a public injury. Men are apt, when they have retained possession of an office for a great part of their lives, to think they own it." "But what is to become of the judges," said I, "who are thus cast off without pensions?" "Old Judge A——," he replied, "owns a plantation, and will go and farm it. Judge B—— will probably get a professor's chair in the new Law University;" and so he went on, providing for all of them. "In future," he continued, "our judges are to be appointed by the Governor and Senate, with good salaries, for eight years; those first named being for two, four, six, and eight years, so that they may go out in rotation; but members of the Legislature can not be raised to the bench, as in Great Britain." I objected, that such a system might render a judge who desired to be re-elected subservient to the party in power, or at least open to such an imputation. "No doubt," he rejoined; "as in the case of your judges, who may be promoted to higher posts on the bench. As to the corrupting influence of their dependence on a legislature chosen by a widely-extended suffrage, many of your mayors and aldermen are elected for short terms, and exercise judicial functions in England."

CHAPTER XXVIII.

Negroes not Attacked by Yellow Fever.—History of Mr. Wilde's Poem.—The Market, New Orleans.—Motley Character of Population.—Levee and Steamers.—First Sight of Mississippi River.—View from the Cupola of the St. Charles.—Site of New Orleans.—Excursion to Lake Pontchartrain.—Shell Road.—Heaps of Gnathodon.—Excavation for Gas-Works.—Buried Upright Trees.—Père Antoine's Date-palm.

BEFORE we left New Orleans Mr. Wilde received a message from his negroes, whom he had left behind at Augusta, in Georgia, entreating him to send for them. They had felt, it seems, somewhat hurt and slighted at not having been sooner permitted to join him. He told us that he was only waiting for a favorable season to transplant them, for he feared that men of color, when they had been acclimatized for several generations in so cool a country as the upper parts of Alabama and Georgia, might run great risk of the yellow fever, although the medical men here assured him that a slight admixture of negro blood sufficed to make them proof against this scourge.

"No one," he said, "feels safe here, who has not survived an attack of the fever, or escaped unharmed while it has been raging." He mentioned the belief of some theorists, that the complaint was caused by invisible animalcules, a notion agreeing singularly with that of many Romans in regard to the malaria of Italy.

The year following this conversation, our excellent friend was himself carried off by this fatal disease. He is well known to the literary world as the author of a work on the "Love and Madness of Tasso," published in 1842, and perhaps still more generally by some beautiful lines, beginning "My life is like the summer rose," which are usually supposed to have derived their tone of touching melancholy, from his grief at the sudden death of a brother, and soon after of a mother, who never recovered the shock of her son's death. As there had been so much contro-

versy about this short poem, we asked Mr. Wilde to relate to us its true history, which is curious. He had been one of a party at Savannah, when the question was raised whether a certain professor of the University of Georgia understood Greek ; on which one of his companions undertook to translate Mr. Wilde's verses, called " The Complaint of the Captive," into Greek prose, so arranged as to appear like verse, and then see if he could pass it off upon the Professor as a fragment of Alcæus. The trick succeeded, although the Professor said that not having the works of Alcæus at hand, he could not feel sure that the poem was really his. It was then sent, without the knowledge of Mr. Wilde and his friends, to a periodical at New York, and published as a fragment from Alcæus, and the Senator for Georgia was vehemently attacked by his political opponents, for having passed off a translation from the Greek as an original composition of his own.

Soon after this affair, Captain Basil Hall mentioned in his " Schloss Hainfeld" (chap. x.), that the Countess Purgstall had read the lines to him, and would not tell him who was the author, but he had little doubt that she had written them herself. The verses had become so popular that they were set to music, and the name of Tampa, a desolate sea-beach on the coast of Florida, was changed into Tempe, the loveliest of the wooded valleys of Greece, in the concluding stanza :—

" My life is like the prints which feet
Have left on Tampa's desert strand ;
Soon as the rising tide shall beat,
All trace will vanish from the sand.
Yet, as if grieving to efface
All vestige of the human race,
On that lone shore loud moans the sea,—
But none, alas ! shall mourn for me !"

In the countess's version Zara had been substituted for Tampa.

During our stay in New Orleans, Mr. Wilde introduced us to his friend Mr. Clay, the Whig candidate in the late presidential election, and I was glad of the opportunity of conversing with this distinguished statesman. In the principal Episcopal church we were very fortunate in hearing Dr. Hawkes preach, and

thought the matter and manner of his discourse deserving of his high reputation for pulpit eloquence.

One morning we rose early to visit the market of the First Municipality, and found the air on the bank of the Mississippi filled with mist as dense as a London fog, but of a pure white instead of yellow color. Through this atmosphere the innumerable masts of the ships alongside the wharf, were dimly seen. Among other fruits in the market we observed abundance of bananas, and good pine-apples, for 25 cents (or a shilling) each, from the West Indies. There were stalls where hot coffee was selling in white china cups, reminding us of Paris. Among other articles exposed for sale, were brooms made of palmetto leaves, and wagon-loads of the dried Spanish moss, or *Tillandsia*. The quantity of this plant hanging from the trees in the swamps surrounding New Orleans, and every where in the delta of the Mississippi, might suffice to stuff all the mattresses in the world. The Indians formerly used it for another purpose—to give porosity or lightness to their building materials. When at Natchez, Dr. Dickeson showed me some bricks dug out of an old Indian mound, in which the tough woody fiber of the *Tillandsia* was still preserved. When passing through the stalls, we were surrounded by a population of negroes, mulattoes, and quadroons, some talking French, others a patois of Spanish and French, others a mixture of French and English, or English translated from French, and with the French accent. They seemed very merry, especially those who were jet black. Some of the creoles also, both of French and Spanish extraction, like many natives of the south of Europe, were very dark.

Amid this motley group, sprung from so many races, we encountered a young man and woman, arm-in-arm, of fair complexion, evidently Anglo-Saxon, and who looked as if they had recently come from the north. The Indians, Spaniards, and French standing round them, seemed as if placed there to remind us of the successive races whose power in Louisiana had passed away, while this fair couple were the representatives of a people whose dominion carries the imagination far into the future. However much the moralist may satirize the spirit of conquest, or the foreigner

laugh at some vain-glorious boasting about "our destiny," none can doubt that from this stock is to spring the people who will supersede every other in the northern, if not also in the southern continent of America :—

———"Immota manebunt
Fata tibi
Romanos rerum dominos."

Soon after our arrival we walked to the levee, or raised bank of the Mississippi, and, ascending to the top of the high roof of a large steamer, looked down upon the yellow muddy stream, not much broader than the Thames at London. At first I was disappointed that the "Father of Waters" did not present a more imposing aspect; but when I had studied and contemplated the Mississippi for many weeks, it left on my mind an impression of grandeur and vastness far greater than I had conceived before seeing it. We counted thirty-four large steam-ships lying at the wharf, each with their double chimneys, and some of truly magnificent dimensions. The vessel we had chanced to enter, had her steam up and was bound for St. Louis, and we were informed that she would convey us to that city, a distance of 1100 miles, in five days, against the current, for eighteen dollars, or 4*l.*, board included.

We next went, for the sake of obtaining a general view of the city and its environs, to the top of the cupola of the St. Charles Hotel, the most conspicuous building in New Orleans, finished in 1836, the lofty dome of which is of a beautiful form. Within the memory of persons now living, there were to be seen on the site of this massive edifice, ducks and other water birds, swimming about in pools of water, in a morass. The architect began the foundation by placing horizontally on the mud a layer of broad planks two and a half inches thick; in spite of which, the heavy building has sunk slightly in some places, but apparently without sustaining material injury.

If a traveler has expected, on first obtaining an extensive view of the environs of this city, to see an unsightly swamp, with scarcely any objects to relieve the monotony of the flat plain save the winding river and a few lakes, he will be agreeably disap-

pointed. He will admire many a villa and garden in the suburbs, and in the uncultivated space beyond, the effect of uneven and undulating ground is produced by the magnificent growth of cypress and other swamp timber, which have converted what would otherwise have formed the lowest points in the landscape into the appearance of wooded eminences. From the gallery of the cupola we saw the well-proportioned, massive square tower of St. Patrick's Church, recently built for the Irish Catholics, the dome of the St. Louis Hotel, and immediately below us that fine bend of the Mississippi, where we had just counted the steamers at the wharf. Here, in a convex curve of the bank, there has been a constant gain of land, so that in the last twenty-five years no less than three streets have been erected, one beyond the other, and all within the line of several large posts of cedar, to which boats were formerly attached. New Orleans was called the Crescent City, because the First Municipality was built along this concave bend of the Mississippi. The river in this part of its course varies in breadth from a mile to three-quarters of a mile, and below the city sweeps round a curve for eighteen miles, and then returns again to a point within five or six miles of that from which it had set out. Some engineers are of opinion that as the isthmus thus formed is only occupied by a low marsh, the current will in time cut through it, in which case the First Municipality will be deserted by the main channel. Even should this happen, the prosperity of a city which extends continuously for more than six miles along the river would not be materially affected, for its site has been admirably chosen, although originally determined in some degree by chance. The French began their settlements on Lake Pontchartrain because they found there an easy communication with the Gulf of Mexico. But they fixed the site of their town on that part of the great river which was nearest to the lagoon, so as to command, by this means, the navigation of the interior country.

March 5, 1846.—From New Orleans I made a short excursion with Dr. Carpenter and Dr. M'Cormac to Lake Pontchartrain, six miles to the northward. We went first along the "shell road" by the Bayou St. John's, and then returned by the

canal. The shell road, so called from the materials used in its construction, namely, the valves of the *Gnathodon cuneatus*, before mentioned, is of a dazzling white color, and in the bright sunshine formed a strong contrast with the vegetation of the adjoining swamps. Yet the verdure of the tall cypresses is somewhat dimmed by the somber color of the gray Spanish moss hanging every where from its boughs like drapery. The rich clusters of scarlet and purplish fruit of the red maple (*Acer Drummondii*) were very conspicuous, and the willows have just unfolded their apple-green leaves. The swamp palmetto (*Chamærops adansoniana*) raises its fan-shaped leaves ten feet high, although without any main trunk, like the sea-island palmetto before described. Several of them are surmounted by spikes bearing seeds. Among the spring flowers we gathered violets (*Viola cuculata*), the elegant *Houstonia serpyllifolia*, which we had first seen at Claiborne, and a white bramble (*Rubus trivialis*), the odor of which resembles that of our primrose. The common white clover, also, is most abundant here, as on the banks of the Mississippi, below New Orleans; yet it is not a native of Louisiana, and some botanists doubt whether any of the European species now growing wild in this state are indigenous.

Lake Pontchartrain is about fifteen feet below high water, and two feet below the lowest water of the Mississippi. It is said to have become sensibly shallower in the last forty years, its depth being now fourteen or fifteen feet only, for it receives annual supplies of mud from the Mississippi, poured into it by one of its mouths, called the Iberville River.

The southeast wind sometimes drives the salt water into the great lagoon, and raises its level from five to ten feet. On a mud bank near the shore I observed the living *Gnathodon*, accompanied by a modiola (*Dreissena*?), and there was a small bank of dead shells on the southern borders of the lake, which may have been thrown up by the waves in a storm, the valves of most of them being separate. I learned that the road materials before spoken of were procured from the east end, where there is an enormous mound of dead shells, a mile long, fifteen feet high, and from twenty to sixty yards broad. Dr. Riddell, Director of the

Mint at New Orleans, estimates the height of some of these shell banks north of the lake, at twenty feet above its level ; yet he thinks they may have been washed up by the waves during storms. I suspect, however, that some change in the relative level of land and sea has taken place since their accumulation. Dr. M'Cormac informed me that he had observed heaps of these same shells recently cast up along the margin of the bay called the Sabine Lake, where the waters of the delta are brackish.

Returning to the bayou, we passed a splendid grove of live oaks on the Metairie ridge, supposed by some to be an old bank of the Mississippi. These bayous, which traverse the delta and alluvial plain of the Mississippi in every direction, are some of them ancient arms of the great river, and others parts of its main channel which have been deserted. They are at a lower level than the present bed of the river, and convey the surface-waters to the sea from that part of the land which the Mississippi is incapable of draining. The bayous are sometimes stagnant, and sometimes they flow in one direction when they convey the surplus waters of the Mississippi to the swamps, and in an opposite direction at seasons when they drain the swamps.

When we reached the canal which connects Lake Pontchartrain with New Orleans, we found its surface enlivened with the sails of vessels laden with merchandize. On the stern of one of these I read, in large letters, a favorite name here—"The Democrat." Many features of the country reminded me of Holland. About a mile from the city we passed a building where there is steam machinery for pumping up water and draining the low lands.

It is not easy for a geologist who wishes to study the modern deposits in the delta, to find any natural sections. I was therefore glad to learn that, in digging the foundations of the gas-works, an excavation had been made more than fifteen feet deep, and therefore considerably below the level of the Gulf, for the land at New Orleans is elevated only nine feet above the sea. The contractors had first hired Irishmen, with spades, to dig this pit ; but finding that they had to cut through buried timber, instead of soil, they were compelled to engage, instead, 150 well-prac-

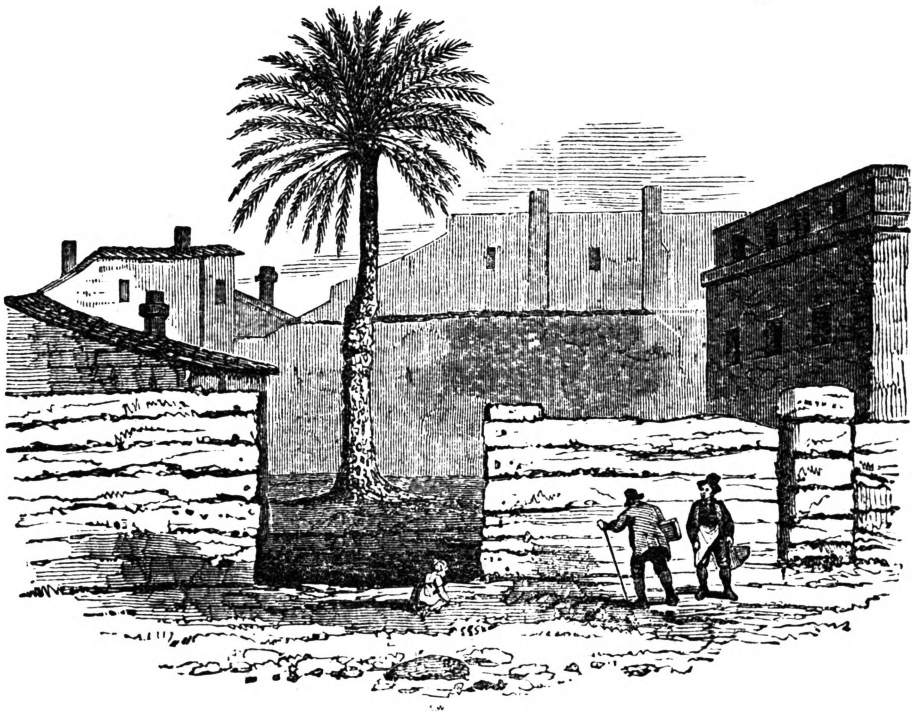
ticed ax-men from Kentucky. I am informed that the superintendent of the gas-works, Dr. Rogers, who is now absent in Cuba, endeavored to estimate the minimum of time required for the growth of the cypress and other trees, superimposed one upon the other, in an upright position, with their roots as they grew, and had come to the opinion, that eighteen centuries must have been required for the accumulation. At the time of my visit the section was too obscure to enable me to verify or criticise these conclusions; but Mr. Bringier, the state surveyor, told me that when the great canal, before alluded to, was dug to the depth of nine feet from Lake Pontchartrain, they had cut through a cypress swamp which had evidently filled up gradually, for there were three tiers of the stumps of trees, some of them very old, ranged one above the other; and some of the trunks must have rotted away to the level of the ground in the swamp before the upper ones grew over them. If it be true, as I suspect from these statements, that the stools of trees which grew in fresh water can be traced down to a level below the Gulf of Mexico, we must conclude that the land has sunk down vertically. Perhaps some part of this subsidence might arise from the gradual decay or compression of large masses of wood slowly changing into lignite, for carbonated hydrogen is said to be constantly given out from the soil here wherever such masses of vegetable matter are decomposing; and during the excavation of these works much inflammable gas was observed to escape. That such upright buried trees are not every where to be met with in this part of the delta, I ascertained from Mr. Bringier. At his house, in the suburbs of New Orleans, a well has been sunk to the depth of twenty-seven feet, and the strata passed through consisted of sandy clay, with only here and there some buried timber and roots.

Walking through one of the streets of New Orleans, near the river, immediately north of the Catholic cathedral, I was surprised to see a fine date-palm, thirty feet high, growing in the open air. (See fig. 8.)

Mr. Wilde told me, that in 1829, in the island of Anastasio, opposite St. Augustine, in Florida, he saw one still taller, probably brought there by the Spaniards, who have introduced them

into the south of Spain from Africa. The tree is seventy or eighty years old, for Père Antoine, a Roman Catholic priest, who died about twenty years ago, at the age of eighty, told Mr. Bringier that he planted it himself, when he was young. In his will he provided, that they who succeeded to this lot of ground should forfeit it if they cut down the palm. Wishing to know something of Père Antoine's history, I asked a Catholic creole, who had a great veneration for him, when he died. He said it could never be ascertained, because, after he became very emaciated, he walked the streets like a mummy, and gradually dried up, ceasing at last to move; but his flesh never decayed, or emitted any disagreeable odour.

Fig. 8.



Père Antoine's Date-palm (Phoenix dactylifera).

If the people here wish to adorn their metropolis with a striking ornament, such as the northern cities can never emulate, let them plant in one of their public squares an avenue of these date-palms.

CHAPTER XXIX.

Excursion from New Orleans to the Mouths of the River.—Steam-Boat Accidents.—River Fogs.—Successive Growths of Willow on River Bank.—Pilot-Station of the Balize.—Lighthouse destroyed by Hurricane.—Reeds, Shells, and Birds on Mud-Banks.—Drift-Wood.—Difficulty of estimating the annual Increase of Delta.—Action of Tides and Currents.—Tendency in the old Soundings to be restored.—Changes of Mouths in a Century inconsiderable.—Return to New Orleans.—Battle-Ground.—Sugar-Mill.—Contrast of French and Anglo-American Races.—Causes of Difference.—State and Progress of Negroes in Louisiana.

Feb. 28, 1846.—BEFORE my arrival at New Orleans, I had resolved to visit the mouths of the Mississippi, and see the banks of sand, mud, and drift timber, recently formed there during the annual inundations. Dr. William Carpenter, although in full practice as a physician, kindly offered to accompany me, and his knowledge of botany and geology, as well as his amiable manners, made him a most useful and agreeable companion.*

I had heard much of the dangers of the Mississippi, and even before I left New England, some of my friends, partly in jest, and partly for the sake of inspiring me with due caution, in the choice of vessels and captains, had told me endless stories of the risks we should run. One of them presented to me a newspaper, containing a formidable array of last year's casualties. Fifty vessels had been snagged, twenty-seven sunk, sixteen had burst their boilers, fifteen had been run into by other vessels, thirteen destroyed by fire, ten wrecked, and seven cut through by ice. This enumeration was followed by an account of the number of persons drowned or injured. Another friend called my attention to a form of advertisement, not uncommon in the St. Louis papers, headed thus, "A fine opportunity of going below." This, he explained, "does not mean *going to the bottom*, as you might

* This excellent naturalist, I regret to say, died soon afterward, in the prime of life, at New Orleans, in 1848.

naturally conclude (although this is by no means an improbable result of your voyage), but it merely signifies 'going down the river.' " Another offered this piece of advice, " When you are racing with an opposition steam-boat, or chasing her, and the other passengers are cheering the captain, who is sitting on the safety valve to keep it down with his weight, go as far as you can from the engine, and lose no time, especially if you hear the captain exclaim, 'Fire up boys, put on the resin!' Should a servant call out, 'Those gentlemen who have not paid their passage will please to go to the ladies' cabin,' obey the summons without a moment's delay, for then an explosion may be apprehended." " Why to the ladies's cabin?" said I. " Because it is the safe end of the boat, and they are getting anxious for the personal security of those who have not yet paid their dollars, being, of course, indifferent about the rest. Therefore never pay in advance, for should you fall overboard during a race, and the watch cries out to the captain, 'A passenger overboard,' he will ask, 'Has he paid his passage?' and if he receives an answer in the affirmative, he will call out, 'Go ahead!'"

I shall explain in the sequel why the danger of accidents, in the present state of the navigation, is by no means so great as statistical tables make it appear at a distance; but certainly my first day's experience was not of a character to dispose me to regard the warnings I had received as idle or uncalled for. After we had been seated for half an hour on the deck of the "Wave" steamer, Dr. Carpenter was recommended by a friend to go by preference in a rival boat, just ready to start for the Balize, which he said was safer. We accordingly went into her, and she sailed first. Eight hours afterward, while we were waiting, as I thought, an unconscionable time, at a landing, while a creole proprietor, who was by no means inclined to be in a hurry, was embarking himself and some black servants, we saw the rival steamer come up very slowly. No sooner had she joined us, than all her passengers poured into our steamer, and told us they had been in the greatest alarm, their steam-pipe having burst; but, most providentially, they had all escaped without serious injury. If I had not already sailed about 1500

miles in southern steamboats, since leaving South Carolina, without a mischance, I might have looked on this adventure as very ominous.

The greater part of New Orleans would be annually overflowed by the river, but for the "levee," an artificial embankment, eight or nine feet high, which protects the city. This levee became less and less elevated as we descended the stream. We saw the buildings of several sugar plantations just behind it, at a short distance from the edge of the bank. When we had gone about twenty miles, below the bend called the English turn, I was struck with the resemblance of the Mississippi to the Savannah, Alabama, and Altamaha rivers, where they flow through a broad alluvial plain, with no bluffs in sight. The swamps on both sides, although several feet lower than the river banks, have the aspect, as before stated, of wooded eminences.

The distance from New Orleans to the great pilot-station at the mouth of the river, called the Balize, is about 80 miles by land, and 110 by water. We had been told we should reach our destination before night; but we were scarcely half way, when we cast anchor in a dense fog, followed in the course of the night, by much lightning and rain. We found the temperature of the water to be 46° Fahrenheit, while that of the air had varied, in the course of twenty-four hours, from 50° to 75° . This difference between the temperature of the water and air, often amounting to 30° Fahrenheit, gives rise to the fogs which prevail at this season. The river flowing from the north, where there is now much ice and snow, is always much colder, and I am informed by pilots, that as far as the Mississippi water can be traced, by its color, into the gulf, it is commonly covered, in the spring, with dense fog, while the atmosphere is clear on each side. These fogs are generated in the same manner as ordinary clouds, by the mixture of two currents of air of different degrees of temperature. The river cools the air in contact with its surface, and this colder layer of air mingling with the warmer layer immediately over it, causes the fog to begin to form close to the water. Hence it is frequently confined to the bed of the river, not spreading at all over the banks. The upper surface is often

as well defined as if it were a bed of liquid, instead of vapor, and the cabin, roof, and funnels of a steamer may be seen moving along perfectly unobscured, while the hull and lower parts are as completely hidden as if buried beneath the turbid water on which it floats. The pilot, too, from the upper deck, can often see the shore and landmarks with perfect clearness, and steer his vessel with safety, while the passengers on the cabin deck can see nothing beyond the sides of the boat. The fogs form sometimes whatever be the quarter from which the wind blows, but are more frequent when it is from the south, as the air is then the warmest. Pieces of ice rarely floated down below Natchez, 350 miles above the Balize; but, in some seasons, they have been known to reach the gulf itself.

Next morning we weighed anchor, and passed Fort Jackson, formerly Fort St. Philip, thirty-three miles above the Balize. At several points, where we stopped for passengers, Dr. Carpenter and I landed. The wood consisted of live oaks bearing bunches of mistletoe, cypress hung with Spanish moss, elms, alders, and the red maple; also a species of myrica, twenty feet high, and numerous wild vines, and other climbers, on the trees. At Bayou Liere, there was a dense growth of a fan-palm (*Chamærops adansoniana*), from eight to thirteen feet high, and a log-cabin thatched with its leaves, affording good shelter from the heaviest rain. On the ground were numerous land-crabs (*Gelasimus*), called here fiddlers, which ran into their holes as we approached, and a few small lizards, and a frog (*Rana pipicus*), which, in the night, had so shrill and clear a note, that we heard it two miles off. The spring is so backward that few flowers are in bloom, and we congratulated ourselves on escaping all annoyance from mosquitoes. At the water's edge I picked up several nuts of the *Carya aquatica*, and many pieces of pumice as large as apples, which must have come from the Rocky Mountains, and are interesting, as reminding one of the fact, that volcanic regions are drained by the western tributaries of the Mississippi. But I could not find a single empty land-shell, or helix, such as the Rhine and many other rivers bring down, and am told that none are met with buried in the recent deposits of the delta.

The storm of the preceding night had driven many sea-gulls up the river, which now followed our steamer, darting down to the water to snatch up pieces of apple or meat, or whatever we threw to them. After passing Fort Jackson, all trees disappeared, except a few low willows. We then entered that long promontory, or tongue of land, if such it can be called, which consists simply of the broad river, flowing between narrow banks, protruded for so many miles into the Gulf of Mexico. Each bank, including the swamps behind it, is about 200 or 300 yards wide, covered with dead reeds, among which we saw many tall, white cranes feeding, as in a flooded meadow, and as conspicuous as sheep. The landscape on either side was precisely similar, and most singular, consisting of blue sky, below which were the dark-green waters of the Gulf, lighted up by a brilliant sun; then the narrow band of swamp, covered with dead reeds, and, in the foreground, a row of pale-green willows, scarcely reflected in the yellow, turbid water of the river. Occasionally large merchant-vessels, some three-masted, were towed up by steam-tugs, through the slack water, near the bank. How the river can thus go to sea as it were, and yet continue for centuries to preserve the same channel, in spite of storms and hurricanes, which have more than once in the last hundred years caused the waters of the Gulf to break over its banks, seems, at first, incomprehensible, till we remember that we have here a powerful body of fresh water flowing in a valley more than a hundred feet deep, with vast mounds of mud and sand on each side, and that the sea immediately adjoining is comparatively shallow.

The growth of willows on that side of the stream where the land is gaining on the water, is often so formal and regular, that they look like an artificial plantation. In the front row are young saplings just rising out of the ground, which is formed of silt, thrown down within the last two or three years. Behind them is an older growth from four to eight feet high. Still farther back is seen a third row twenty-five feet high, and sometimes in this manner five tiers, each overtopping the other, showing the gradual formation of the bank, which inclines upward, because the soil first deposited has been continually raised during

annual floods. While a gain of land is thus taking place on one side, the river is cutting into and undermining the opposite bank, often at the rate of ten feet or more in a year. The most common willow is *Salix nigra*, but Dr. Carpenter tells me there is a rarer species (*Salix longifolia*) intermixed. I inquired how it happened that none of these trees were old, although some part of the banks on which they grew are known to be of considerable antiquity. My companion said, "that in marshy places the *Salix nigra* is not a long-lived tree, rarely lasting more than twenty-five or thirty years."

At length, as we approached the Balize, even these willows ceased to adorn the margin of the river, which was then simply bounded by mounds of bare sand. Balize means beacon in Spanish. It appears that, in 1744, the main passage or entrance of the river was at three small islands, which then existed where this pilot station now stands. It continued to be the principal mouth of the Mississippi for about a quarter of a century later. The present village, called the Balize, has a population of more than 450 souls, among whom there are fifty regularly appointed pilots, and many more who are aspirants to that office. The houses are built on piles driven into the mud-banks, and the greater part of them moored, like ships, to strong anchors, whenever a hurricane is apprehended. They have no fear of the river, which scarcely rises six inches during its greatest floods; but some winds make the Gulf rise six feet, as in the year 1812, and so fast has been the increase of the population of late, that there are scarcely boats enough, as one of the pilots confessed to me, to save the people, should the waters rise again to that elevation. They might, however, escape on drift timber, which abounds here, provided they had time to choose the more buoyant trees; for we observed many large rafts of wood so water-logged that it could scarcely swim, and the slightest weight would sink it.

Although the chimney of our steamer was not lofty, it stood higher than the houses; but in order to obtain a wider prospect, I went up into the look-out, a wooden frame-work with a platform, where the pilots were watching for vessels, with their

telescopes. From this elevation we saw, far to the south, the lighthouse, situated at what is now the principal entrance of the river. The pilots told us, that the old lighthouse, of solid brick-work, eighty-seven feet high, erected on "the south point," was destroyed by a hurricane in the winter of 1839. The keeper was saved, although he was in the building for forty-eight hours before it fell, and, during the whole time, it vibrated frightfully to and fro. Much of the low banks, then bounding the river, were swept away, but have since been restored.

To the eastward all was sea ; turning to the north, or toward New Orleans and the delta, I could discover no more signs of the existence of a continent than when looking southward or toward the lighthouse. In the west, Bird Island, covered with trees, was more conspicuous. An old pilot told us it was inhabited by large deer, and was "very high land." "How high above the sea?" said I. "Three or four feet," he replied ; and as if so startling an assertion required the confirmation of several witnesses, he appealed to the bystanders, who assented, saying, "It is all that, for it was only just covered during the great hurricane." And well may such an elevation command respect in a town where all the foundations of the houses are under water, and where the value of each site is measured by the number of inches or feet within which a shoal rises to the surface of the sea.

It was a curious sight to behold seventy or more dwellings, erected on piles, among reeds half as high as the houses, and which often grew close to them, most of the buildings communicating with an outhouse by a wooden bridge thrown over a swamp or pool of water, sometimes fresh and sometimes brackish. On one side of the main channel, which our steamer had entered, was built a long wooden platform, made of planks, resting on piles, which served for a promenade. There we saw the pilots' wives and daughters, and among them the belles of the place, well dressed, and accompanied by their pet dogs, taking their evening walk.

March 1.—Having engaged a boat, Dr. Carpenter and I set out on an excursion to examine the bayous or channels between the mud banks. The first stroke of the oars carried us into the

midst of a dense crop of tall reeds. This plant (*Arundo phragmitis*) is an annual, and inhabits fresh-water swamps, yet we found many dead barnacles attached to them, showing that, in the course of the year, when the river is low, the salt water prevails here, so that these marine cirripeda have time to be developed from the embryo state, and to flourish for some months, till they are killed by the returning fresh water. We could only detect one shell inhabiting these mud banks, a species of *Neritina*. But I am told that the *Gnathodon* is found in the brackish water, a short distance beyond. It was also stated, that about eighteen miles beyond the southwest and northwest passes, or extreme mouths of the river, there are banks of sea-shells of various species. With the arundo was intermixed a tall rush or reed-mace (*Typha*), somewhat resembling the bulrush. We got out and walked on these banks, on which fresh water was standing, so cold and benumbing to the hands, that we had no fear of musquitoes. At almost any other season these insects would have swarmed here, and tormented us greatly. Even the alligators were invisible, though some of them had been out a few days before. Many paths, recently trodden by racoons, were seen to traverse the reeds, and there were foot-prints of the civet or mink, and of wild cats and water-rats in abundance. We put up several white herons, and many snipes and curlews, and the boat-tailed grackle (*Quisqualus*).

At length returning to the boat, we soon reached a channel blocked up with drift wood in every stage of decay, some fresh and sound, but most of it rotten and water-logged. We walked for hundreds of yards over natural rafts of this timber, the quantity of which, they say, has sensibly diminished since the steamers began to consume so much fuel, for it is now intercepted in large quantities before it gets to New Orleans, and cut into logs for the steamers.

We were desirous of obtaining accurate information from the pilots respecting the recent advance of land on the Gulf, hoping from such data to calculate the time when the mouths of the river were at New Orleans. But I soon found that materials for such a calculation are not to be procured.

Dr. Carpenter had brought with him Charlevoix's maps of the river mouths or "passes," published 112 years ago, and referring to the state of things about 130 years ago. We were surprised to find how accurately this survey represents, for the most part, the number, shape, and form of the mud-banks and bayous, or channels, as they now exist around the Balize. The pilots, to whom we showed the charts, admitted that one might imagine them to have been constructed last year, were it not that bars had been thrown across the mouths of every bayou, because they are no longer scoured out as they used to be when the principal discharge of the Mississippi was at this point. We then went within a mile of the old Spanish building, called the Magazine, correctly laid down in Charlevoix's map, and now 600 yards nearer the sea than formerly, showing that the mud-banks have given way, or that the salt water has encroached in times when a smaller body of fresh water has been bringing down its sediment to this point.

The southwest pass is now the principal entrance of the Mississippi, and till lately there was eighteen feet water in it, but the channel has grown shallower by two feet. When it is considered that a fleet of the largest men-of-war could sail for a thousand miles into the interior, were it not for the bars thrown across the entrance of each of the mouths or passes, one can not wonder that efforts should have been made to deepen the main channel artificially. But no human undertaking seems more hopeless; for, after a great expenditure of money in 1838 and 1839, and the excavation, by means of powerful steam dredges, of a deep passage, the river filled up the entire cavity with mud during a single flood.

One of the chief pilots told us, that since 1839, or in six years, he had seen an advance of the prominent mouths of the river of more than a mile. But Linton, the oldest and most experienced of them, admitted that the three passes called the northeast, southeast, and southwest, had in the last twenty-four years only advanced one mile each. Even this fact would furnish no ground for estimating the general rate at which the delta advances, for on each of these narrow strips of land, or river-banks, the sea

would make extensive inroads whenever the main channel of discharge is altered and there is a local relaxation of the river's power. Every year, as soon as the flood season is over, the tide enters far up each channel, scouring out mud and sand, and sweeping away many a bar, formed during the period of inundation. Bringier, an experienced surveyor of New Orleans, told me, that on revisiting the mouths of the Mississippi after an interval of forty years, he was surprised to observe how stationary their leading features had remained. Mr. Dunbar, also an engineer in great practice in Louisiana, assured me that on comparing the soundings lately made by him with those laid down in the French maps of *Sieur Diron*, published in 1740, he found the changes to be quite inconsiderable. On questioning the pilots on the subject, they stated that the changes from year to year are great, but are no measure whatever of those worked out in a long period, for there seems to be a tendency in the action of the tides and river to restore the old soundings.

Captain Grahame, also a government surveyor, on comparing the northeast pass with the charts made a century before, found it had not advanced more than a quarter of a mile, and that in the same interval the principal variations at the pass à Loutre had consisted in the filling up of some bayous. Even if we could assume that the progress of the whole delta in twenty-five years was as great as that assigned by *Linton* to one or two narrow channels and banks, it would have taken several thousand years for the river to advance from New Orleans to the Balize; but when we take into our account the whole breadth of the delta, or that part of it which has advanced beyond the general coast-line above 100 miles across, we must allow an enormous period of time for its accumulation.

The popular belief in New Orleans, that the progress of the banks near the mouths of the river has been very rapid, arises partly from the nature of the evidence given by witnesses in the law courts, in cases of insurance. When a ship is lost, the usual line of defense on the part of the pilots, whether for themselves or their friends, is to show that new sand-bars are forming, and shoals shifting their places so fast, that no blame attaches to any

one for running a vessel aground. To exaggerate rather than underrate, the quantity of sediment newly deposited by the river, is the bias of each witness, although their statements may in the main be correct; for in the contest annually carried on between the river and the sea, there is unquestionably a vast amount of destruction and renovation of mud-banks and sand bars. In these changes the action of the tide, and the power of the breakers during storms, and a strong marine current, all play their part. There seem to be well-authenticated accounts of anchors cast up from a depth of several fathoms near the mouths of the river, and heavy stones sunk sixteen feet deep, and found afterward high and dry on shoals. The ballast also of several wrecked vessels, the submergence of which, in two or three fathoms water, had been ascertained, have in like manner been thrown up, above high water mark, on newly formed islands.

All the pilots agree, that when the Mississippi is at its height, it pours several streams of fresh water, tinged with yellow sediment, twelve or more miles into the gulf, beyond its mouths. These streams floating over the heavier salt water, spread out into broad superficial sheets or layers, which the keels of vessels plough through, turning up a furrow of clear blue water, forming a dark streak in the middle of the ship's wake. I infer, therefore, that both in the summer, when the swollen river is turbid and depositing mud, and in the winter, when the sea is making reprisals on the delta, there is a large amount of fine sediment dispersed far and wide, and carried by currents to the deeper and more distant parts of the Gulf. To this dispersing power I shall recall the reader's attention in a future chapter, when discussing the probable antiquity of the delta.

March 2.—We returned to New Orleans in the same steamer. It is remarkable that for more than 150 miles above the Balize, there is only one of those great bends in the course of the Mississippi, which are so general a character of its channel north of New Orleans. The exception is the great sweep called the English Turn. Mr. Forshey imputes this difference in the shape of the bed of the river to the distinct circumstances under which a stream is placed when it shapes out its course through a deposit

raised above the level of the sea, or when it is forming its bed, as to the south of New Orleans, below the sea-level.

Above the English Turn, and within a few miles of the metropolis, I landed on the famous battle-ground, where the English, in 1815, were defeated, and saw the swamp through which the weary soldiers were required to drag their boats, on emerging from which, they were fired upon by the enemy, advantageously placed on the higher ground, or river-bank. The blunder of the British commander is sufficiently obvious even to one unskilled in military affairs. They are now strengthening the levee at this point, for the Mississippi is threatening to pour its resistless current through this battle-ground, as, in the delta of the Ganges, the Hoogly is fast sweeping away the celebrated field of Plassy.

At one of the landings on the left bank of the river, Dr. Carpenter went with me to see a large sugar-mill, in the management of which an Anglo-American proprietor had introduced all the latest improvements. There was machinery, worked by steam, for pressing the juice out of the sugar-canes, and large boilers and coolers, with ducts for the juice to flow down into enormous vats.

We heard much of the injury done to the sugar plantations and gardens by the cocoa, or nut grass (*Cyperus hydra*), which I had seen springing up even in the streets of New Orleans between the pavement stones. It increases by suckers as well as by seed; but it is only of late years that it has ravaged Louisiana. If horses be brought from an estate where this plant is known to exist, their hoofs are carefully cleaned, lest the soil, adhering to them should introduce some fibers or tubers of this scourge.

Although impatient to return to the city, we could not help being amused when we learnt that our boat and all its passengers were to be detained till some hogsheads of sugar were put on board, some of the hoops of which had got loose. A cooper had been sent for, who was to hammer them on. "You may therefore go over the sugar-mill at your leisure." I observed that all whose native tongue was English, were indignant at the small value which the captain seemed to set on their time; but the creole majority, who spoke French, were in excellent humor. A

party of them was always playing whist in the cabin, and the rest looking on. When summoned to disembark at their respective landings, they were in no haste to leave us, wishing rather to finish the rubber. The contrast of the two races was truly diverting, just what I had seen in Canada. Whenever we were signaled by a negro, and told to halt "till Master was ready," I was sure to hear some anecdote from an Anglo-Saxon passenger in disparagement of the creoles. "North of New Orleans," said one of my companions, "the American captains are beginning to discipline the French proprietors into more punctual habits. Last summer, a senator of Louisiana having forgotten his great-coat, sent back his black servant to bring it from his villa, expecting a first-rate steamer, with several hundred people on board, to wait ten or fifteen minutes for him. When, to his surprise, the boat started, he took the captain to task in great wrath, threatening never to enter his vessel again."

My attention was next called to the old-fashioned make of the French ploughs. "On this river, as on the St. Lawrence," said an American, "the French had a fair start of us by more than a century. They obtained possession of all the richest lands, yet are now fairly distanced in the race. When they get into debt, and sell a farm on the highest land next the levee, they do not migrate to a new region farther west, but fall back somewhere into the low grounds near the swamp. There they retain all their antiquated usages, seeming to hate innovation. To this day they remain rooted in those parts of Louisiana where the mother country first planted her two colonies two centuries ago, and they have never swarmed off, or founded a single new settlement. They never set up a steam-engine for their sugar-mills, have taken no part in the improvement of steam navigation, and when a railway was proposed in Opelousas, they opposed it, because they feared it would 'let the Yankees in upon them.' When a rich proprietor was asked why he did not send his boy to college, he replied, 'Because it would cost me 450 dollars a year, and I shall be able to leave my son three more negroes when I die, by not incurring that expense.' " Dr. Carpenter informed me, that the Legislature of Louisiana granted in 1834, a charter for a medi-

cal college in the Second Municipality, which now, in the year 1846, numbers one hundred students, and is about to become the medical department of a new university. The creoles were so far stimulated by this example, as to apply also for a charter for a French College in the First Municipality. It was granted in the same year, but has remained a dead letter to this day.

One of the passengers had been complaining to me, that a creole always voted for a creole candidate at an election, however much he differed from him in political opinions, rather than support an Anglo-Saxon of his own party. I could not help saying that I should be tempted to do the same, if I were of French origin, and heard my race as much run down as I had done since I left the Balize.

A large portion of the first French settlers in Louisiana came from Canada, and I have no doubt Gayarre is right in affirming that they have remained comparatively stationary, because they carried out with them, from the mother country, despotic maxims of government, coupled with extreme intolerance in their religious opinions. The bigotry which checked the growth of the infant colony was signally displayed, when Louis XIV. refused to permit 400 Huguenot families, who had fled to South Carolina, after the revocation of the edict of Nantes, to be incorporated among the new settlers on the Mississippi.*

Notwithstanding the marked inclination of the Anglo-Saxons to seek no other cause than that of race to account for the alleged stationary condition of the creoles, I was glad to find that one of the most intelligent citizens of New Orleans took a more hopeful and less fatalist view of the matter. "I observe," he said, "that those French emigrants who have come out to us lately, especially the Parisians, are pushing their way in the world with as much energy as any of our race; so I conclude that the first settlers in Canada and Louisiana quitted Europe too soon, before the great Revolution of 1792 had turned the Frenchman into a progressive being."

Among the creoles with whom I came in contact, I saw many whose manners were most polite and agreeable, and I felt as I

* Gayarre, *Histoire de la Louisiane*, tom. i. p. 69.

had done toward the Canadian "habitants," that I should have had more pleasure in associating with them than with a large portion of their Anglo-American rivals, who, from a greater readiness to welcome new ideas, are more likely to improve, and will probably outstrip them in knowledge and power.

When we sat down to dinner in the cabin, one of the creoles, of very genteel appearance, was so dark that I afterward asked an American, out of curiosity, whether he thought my neighbor at table had a dash of negro blood in his veins. He said he had been thinking so, and it had made him feel very uncomfortable during dinner. I was so unprepared for this manifestation of anti-negro feeling, that I had difficulty in keeping my countenance. The same messmate then told me that the slaves had lately risen on an estate we were just passing, on the right bank of the river, below New Orleans, but had been quickly put down. He said that the treatment of them had greatly improved within the last eight years, keeping pace steadily with the improved civilization of the whites. The creoles, he said, fed their negroes well, but usually gave them no beds, but blankets only to lie down upon. They were kind in their feelings toward them; but, owing to their improvident habits, they secured no regular medical attendance, and lost more black children than the American planters.

I afterward remarked that the growth of New Orleans seemed to show that a large city may increase and flourish in a slave state; but Dr. Carpenter and Mr. Wilde both observed, that the white race has been superseding the negroes. Ten years ago, say they, all the draymen of New Orleans, a numerous class, and the cabmen, were colored. Now, they are nearly all white. The servants at the great hotels were formerly of the African, now they are of the European race. Nowhere is the jealousy felt by the Irish toward the negroes more apparent. According to some estimates, in a permanently resident population not much exceeding 80,000, there are only 22,000 colored persons, and a large proportion of these are free.

Over a door in the principal street of New Orleans we read the inscription, "Negroes on sale here." It is natural that

southerners should not be aware how much a foreigner is shocked at this public mode of treating a large part of the population as mere chattels.

The following is an advertisement copied verbatim from a Natchez paper:—

“NINETY NEGROES FOR SALE.

“I have about ninety negroes, just arrived from Richmond, Virginia, consisting of field hands, house servants, carriage drivers, two seamstresses, several very fine cooks (females), and one very fine neat cook (male), one blacksmith, one carpenter, and some excellent mules and excellent wagons and harness, and one very fine riding horse—all of which I will sell at the most reasonable prices. I have made arrangements in Richmond, Va., to have regular shipments every month, and intend to keep a good stock on hand of every description of servants during the season.

“JOHN D. JAMES.

“Natchez, October 16-tf.”

In a St. Louis paper, I read, in the narrative of a steamboat collision, the following passage:—“We learn that the passengers, with few exceptions, lost all their effects;—one gentleman in particular lost nine negroes (who were on deck) and fourteen horses.”

Among the laws recently enacted in Louisiana, I was glad to see one to prevent persons of color exiled from other states, or transported for some offense, from becoming citizens. In spite of such statutes, the negro-exporting portions of the Union will always make the newer states play in some degree the part of penal settlements.

Free blacks are allowed to be witnesses in the courts here, in cases where white men are concerned, a privilege they do not enjoy in some free states, as in Indiana; but they do not allow free blacks to come and settle here, and say they have been compelled to adopt this precaution by the abolitionists.

An intelligent Louisianian said to me, “Were we to emancipate our negroes as suddenly as your government did the West

Indians, they would be a doomed race; but there can be no doubt that white labor is more profitable even in this climate." "Then, why do you not encourage it?" I asked. "It must be the work of time," he replied; "the prejudices of owners have to be overcome, and the sugar and cotton crop is easily lost, if not taken in at once when ripe; the canes being damaged by a slight frost, and the cotton requiring to be picked dry as soon as mature, and being ruined by rain. Very lately a planter, five miles below New Orleans, having resolved to dispense with slave labor, hired one hundred Irish and German emigrants at very high wages. In the middle of the harvest they all struck for double pay. No others were to be had, and it was impossible to purchase slaves in a few days. In that short time he lost produce to the value of ten thousand dollars."

A rich merchant of Pennsylvania, who was boarding at the St. Louis Hotel, showed me a letter he had just received from Philadelphia, in which his correspondent expressed a hope that his feelings had not often been shocked by the sufferings of the slaves. "Doubtless," said the writer, "you must have often witnessed great horrors." The Philadelphian then told me, that after residing here several years, and having a strong feeling of the evils as well as impolicy of slavery, he had never been forced to see nor hear of any castigation of a slave in any establishment with which he had intercourse. "Once," he added, "in New Jersey (a free state) he remembered having seen a free negro child whipped by its master." The tale of suffering to which his Pennsylvanian correspondent particularly alluded, was not authentic, or, at least, grossly exaggerated. It had been copied from the abolitionist papers of the north into the southern papers, sometimes with and sometimes without comment; for such libels are hailed with pleasure by the Perpetualists as irritating the feeling of that class of slave-owners who are most anxious to advance the welfare and education of the negroes.

We ascertained that Miss Martineau's story of Madame Lalaurie's cruelty to her slaves was perfectly correct. Instances of such savage conduct are rare, as was indeed sufficiently proved by the indignation which it excited in the whole city. A New England

lady settled here told me, she had promised to set free her two female colored servants at her death. I asked if she had no fear of their poisoning her. "On the contrary," she replied, "they would be in despair were I to die."

One of the families which we visited at New Orleans was plunged in grief by the death of a little negro girl, suddenly carried off by a brain fever, in the house. She was the daughter of a domestic servant, and the sorrow for her loss was such as might have been felt for a relation.

CHAPTER XXX.

Voyage from New Orleans to Port Hudson.—The Coast, Villas, and Gardens.—Cotton Steamers.—Flat Boats.—Crevasses and Inundations.—Decrease of Steamboat Accidents.—Snag-Boat.—Musquitoes.—Natural Rafts.—Bartram on buried Trees at Port Hudson.—Dr. Carpenter's Observations.—Landslip described.—Ancient Subsidence in the Delta followed by an upward Movement, deducible from the buried Forest at Port Hudson.

March 10, 1846.—ON leaving New Orleans, I made arrangements for stopping to examine the bluff at Port Hudson, 160 miles up the river, where I was to land in the night, from the *Rainbow* steamer, while my wife started in another boat, the *Magnolia*, to go direct to the more distant port of Natchez. If a lady is recommended to the captain of one of these vessels she feels herself under good protection, and needs no other escort; but Mr. Wilde introduced my wife to Judge ——, who kindly undertook to take charge of her, and see her to the hotel at Natchez. The *Rainbow* ascended the river at the rate of eleven miles an hour, keeping near the bank, where the force of the current was broken by eddies, or where the backwater was sometimes running in our favor. Occasionally her speed was suddenly checked, when it became necessary to cross the stream on reaching a point where the current was setting with its full force against the bank along which we had been sailing. In spite of such delays, the rate of going up is only one-third less than going down the stream. The recent introduction of separate engines to work each of the wheels greatly economizes the time spent in the landing of passengers. The boat may be turned round or kept stationary with more facility, when each wheel can be moved in an opposite direction. In this part of the Mississippi, and at this season, the points where passengers can be set ashore are very numerous, the water being often forty feet deep close to the banks. But there are certain regular places

of disembarkation, the approach to which is announced by ringing a large bell.

A great proportion of the trees are still leafless, the willows, cypresses, and red maples being no more advanced than I had seen them at Mobile in the third week of February. The gardens continue to be gay with the blossoms of the peach and plum-trees. As our vessel wound its way round one great bend after another, we often saw directly before us the dome of the St. Charles and the tower of St. Patrick's, and were sailing toward them after I thought we had already taken a last look at them far astern. In the first seven hours we made sixty miles, including stoppages. We were passing along what is called "the coast," or that part of the Mississippi which is protected by a levee above the metropolis. A great many handsome country houses, belonging to the proprietors of sugar plantations, give a cultivated aspect to this region, and the scenery is enlivened by a prodigious number of schooners and large steamers sailing down from the Ohio and Red rivers, heavily laden with cotton. This cotton has already been much compressed when made up into bales; but it undergoes, at New Orleans, still greater pressure, by steam power, to diminish its bulk before embarkation for Liverpool.

The captain calculated that within the first seven hours after we left the wharf, in the Second Municipality, we had passed no less than ten thousand bales going down the river, each bale worth thirty-five dollars at present prices, and the value of the whole, therefore, amounting to 350,000 dollars, or 73,500*l.* sterling. All this merchandize would reach the great emporium within twenty hours of the time of our passing it. Before we lost sight of the city, we saw a large flat boat drifting down in the middle of the current, steered by means of a large oar at the stern. It was laden with farm produce, and had come about two thousand miles, from near Pittsburg, on the Ohio. I had first observed this kind of craft on my way to the Balize, meeting near Fort Jackson a boat without a single inmate, thirty-five feet long, and built of stout planks, with a good roof. It was drifting along on its way to the Gulf of Mexico, the owner having abandoned it after selling his corn and other stores at the

great city. He himself had probably returned to the north in a steamer; having found the substantial floating mansion, in which he had lived for several weeks or months, quite unsaleable, although containing so much good timber shaped into planks. It is the duty of the wharfinger at New Orleans to see that the river is not blocked up with such incumbrances, and to set them adrift. After wandering for several hundred miles in the Gulf, they are sometimes cast ashore at Pensacola.

Soon afterward, when we were taking in wood at a landing, I entered another of these flat boats, just arrived there, and discovered that it was a shop, containing all kinds of grocery and other provisions, tea, sugar, lard, cheese, flour, beef, and whiskey. It was furnished with a chimney, and I was surprised to see a large family of inmates in two spacious cabins, for no one would suspect these boats to be so roomy below water, as they are usually sunk deep in the river by a heavy freight. They had a fiddle on board, and were preparing to get up a dance for the negroes. A fellow-traveler told me that these peddlers are commonly called chicken-thieves, and, the day after they move off, the planters not unfrequently miss many of their fowls.

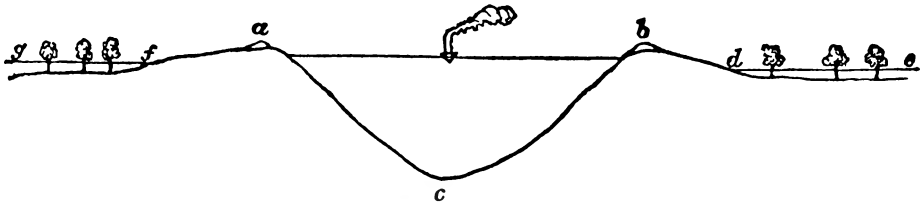
Pointing to an old levee with a higher embankment newly made behind it, the captain told me, that a breach had been made there in 1844, through which the Mississippi burst, inundating the low cultivated lands between the highest part of the bank and the swamp. In this manner, thousands of valuable acres were injured. He had seen the water rush through the opening at the rate of ten miles an hour, sucking in several flat boats, and carrying them over a watery waste into a dense swamp forest. Here the voyagers might remain entangled among the trees unheard of and unheeded till they were starved, if canoes were not sent to traverse the swamps in every direction, in the hope of rescuing such wanderers from destruction. When we consider how many hair-breadth escapes these flat boats have experienced,—how often they have been nearly run down in the night, or even in the day, during dense fogs, and sent to the bottom by collision with a huge steamer, it is strange to reflect, that at length, when their owners have caught sight of the

towers of New Orleans in the distance, they should be hurried into a wilderness, and perish there.

I was shown the entrance of what is called the Carthage crevasse, formed in May, 1840, and open for eight weeks, during which time it attained a breadth of eighty feet. Its waters were discharged into Lake Pontchartrain, when nothing was visible between that great lagoon and the Mississippi but the tops of tall cypress trees growing in the morass, and a long, narrow, black stripe of earth, being the top of the levee, which marked the course of the river.

The reader may naturally ask why the Mississippi, when it has once burst through its bank, and taken this shorter cut to the sea, does not continue in the same course, reaching the salt water in a few miles instead of flowing two hundred miles before it empties itself into the Gulf. I may remark in reply, that the great river does not run, as might be inferred from the description of some of the old geographers, on the top of a ridge in a level plain, but in a valley from one hundred to two hundred and fifty feet deep.

Fig. 9.



Section of Channel, Bank, Levees (*a* and *b*), and Swamps of Mississippi River.

Thus *a b c* may represent the cavity in which the river flows, the artificial levees at the top of the banks being seen at *a* and *b*. The banks are higher than the bottom of the swamps, *f g* and *d e*; because, when the river overflows, the coarser part of the sediment is deposited at *a* and *b*, where the speed of the current is first checked. It usually runs there with a gentle current among herbage, reeds, and shrubs; and is nearly filtered of its earthy ingredients before it arrives at the swamps. It is probable that the Mississippi flows to the nearest point of the Gulf, where there is a sufficient depth or capacity in the bed of the sea to

receive its vast burden of water and mud ; and if it went to Lake Pontchartrain, it would have to excavate a new valley like *a b c*, many times deeper than the bottom of that lagoon.

The levee raised to protect the low grounds from inundation, was at first, when we left New Orleans, only four feet high, so as not to impede our view of the country from the deck ; but as we ascended, both the natural bank and the levee became higher and higher, and by the time we had sailed up sixty-five miles, I could only just see the tops of tall trees in the swamps. Even these were only discernible from the roof of the cabin, or what is called the hurricane deck, when we had gone 100 miles from New Orleans.

The large waves raised by the rapid movement of several hundred steamers, causes the undermining and waste of the banks to proceed at a more rapid rate than formerly. The roots also of trees growing at the edge of the stream, were very effective formerly in holding the soil together, before so much timber had been cleared away. Now the banks offer less resistance to the wasting action of the stream.

The quantity of drift wood floated down the current has not diminished sensibly within the last twenty years, but nearly all of it is now intercepted in the last forty miles above New Orleans, and split up into logs by the proprietors to supply the furnaces of steamboats, which are thus freeing the river of the heavy masses against which they used formerly to bump in the night, or round which they were forced to steer in the day. There has also been a marked decrease, of late years, in the number of snags. The trunks of uprooted trees, so called, get fixed in the mud, having sunk with their heavier end to the bottom, and remain slanting down the stream, so as to pierce through the bows of vessels sailing up. A government report just published, shows that two snag-boats, each having a crew of twenty men, one of them drawing four feet, and the other two feet water, have extracted 700 snags in four weeks out of the Missouri, and others have been at work on the Mississippi. When it is remembered that some of the most dangerous of these snags have been known to continue planted for twenty years in the same spot (so slowly does wood

decay under water), it may readily be conceived how much this formidable source of danger has lessened in the last few years. At the season when the river is lowest, grappling irons are firmly fixed to these snags, and the whole force of the engines in the snag-boat is exerted to draw them out of the mud; they are then cut into several pieces, and left to float down the stream, but part of them being water-logged, sink at once to the bottom.

Several travelers assure me, that serious accidents are not more common now on the Mississippi and its tributaries, when there are 800 steamers afloat, than twenty years ago, when the number of steamers was less than fifty. The increased security arises, chiefly, from the greater skill and sobriety of the captains and engineers, who rarely run races as formerly, and who usually cast anchor during fogs and in dark nights. Such precautions have no doubt, become more and more imperative, in proportion as the steamers have multiplied. On the wide Atlantic, the chances of collision in a fog may be slight, but to sail in so narrow a channel as that of a river, at the rate of ten miles an hour, unable to see a ship's length ahead, with the risk of meeting, every moment, other steamers coming down at the rate of fifteen miles an hour, implies such recklessness, that one can not wonder that navigators on the western waters have earned the character of setting small value on their own and others' lives. Formerly, the most frequent cause of explosions was a deficiency of water in the boiler; one of the great improvements adopted, within the last five years, for preventing this mischief, is the addition of a separate steam-apparatus for pumping up water, and securing a regular supply by machinery, instead of trusting to the constant watchfulness of the engineers. On the whole, it seems to be more dangerous to travel by land, in a new country, than by river steamers, and some who have survived repeated journeyings in stage-coaches, show us many scars. The judge who escorted my wife to Natchez, informed her that he had been upset no less than thirteen times.

On the left bank, about sixty miles above New Orleans, stands Jefferson College; a schoolmaster from the north, speaking to me of its history, imputed its want of success to the insubordination

of the youths, the inability of southern planters to govern their children themselves, and their unwillingness to delegate the necessary authority to the masters of universities or schools. "But they are growing wiser," he said, "and vigorous efforts are making to improve the discipline in the university of Charlottesville, in Virginia, which has hitherto been too lax.

We soon afterward passed a convent on the same bank, and I heard praise bestowed on the "Sisters of Charity," for their management of a hospital.

At St. Thomas's Point, about twenty-five miles above New Orleans, we passed a fine plantation, which formerly belonged to Mr. Preston, of South Carolina, a distinguished member of Congress, whose acquaintance I made in 1842. There are, I am told, nearly 1000 negroes here, and I am astonished at the large proportion of the colored race settled every where on the land bordering the river. The relative value of colored and white labor was here, as elsewhere, a favorite theme of conversation, when there happened to be passengers on board from the northern states. The task of three negroes, they say, in Louisiana, is to cut and bind up two cords of wood in a day, whereas, a single white man, in the State of New York, prepares three cords daily. In packing cotton, the negroes are expected to perform a third less work than a white laborer.

In the afternoon we were overtaken by a heavy thunder-shower, the water pouring off the eaves of our cabin roof, in copious streams, into the river, through numerous spouts or tin pipes. When the rain abated, I saw a fog slowly stealing over parts of the stream, for the water was much colder than the air. For some hours we were unable to proceed, and the captain informed me, that we should remain prisoners until the temperature of the Mississippi and that of the atmosphere were more nearly equalized. This, he hoped, would happen in one of two ways, either by a renewal of rain, which would warm the river, or by the wind veering round from south to west, which would cool the air. The latter change soon occurred, and we were instantly released.

I was congratulated by some northerners at having escaped the musquitoes. The captain said, "that they who are acclimat-

ized, suffer no longer from the bites, or scarcely at all, and even the young children of creoles are proof against them, although the face and neck of a new settler, whether young or old, swell up frightfully. Yet the wild cattle and deer have not acquired any hereditary immunity from this torment, and, to escape it, are seen standing in the lakes with their heads only above the water." Some passengers assured me, "that when people have recovered from the yellow fever, the skin, although in other respects as sensitive as ever, is no longer affected by a musquito bite, or, if at all, in a very slight degree;" and they added, "that last year, 1845, both the yellow fever and the musquitoes were in abeyance, although the heat of the season was intense."

After we had sailed up the river eighty miles, I was amused by the sight of the insignificant village of Donaldsonville, the future glories of which I had heard so eloquently depicted.* Its position, however, is doubtless important; for here the right bank is intersected by that arm of the Mississippi, called Bayou La Fourche. This arm has much the appearance of a canal, and by it, I am told, our steamer, although it draws no less than ten feet water, might sail into the Gulf of Mexico, or traverse a large part of that wonderful inland navigation in the delta which contributes so largely to the wealth of Louisiana. A curious description was given me, by one of my fellow travelers, of that same low country, especially the region called Attakapas. It contains, he said, wide "quaking prairies," where cattle are pastured, and where you may fancy yourself far inland. Yet, if you pierce any where through the turf to the depth of two feet, you find sea-fish swimming about, which make their way in search of food under the superficial sward, from the Gulf of Mexico, through subterranean watery channels.

Notwithstanding the quantity of sediment in the Mississippi, they tell me that its waters are inhabited by abundance of shad and herring, and in several places, when I asked the fishermen what they were catching, they answered, "Sardines."

In the course of the first day we saw the Bayou Plaquemine on the right, and the Iberville River on the left bank of the Mis-

* Ante, p. 99.

Mississippi, the two arms next above that of La Fourche. One of those natural rafts of floating trees which occasionally bridge over the western rivers for many years in succession, becoming covered over with soil, shrubs, and trees, blocked up till lately the Bayou Plaquemine. The obstacle was at length removed at the expense of the state, and the rush of water through the newly cleared channel was so tremendous, that several engineers entertained apprehensions, lest the whole of the Mississippi should take its course by this channel to the sea, deserting New Orleans. Mr. Forshey assured me there was no real ground for such fears, because the Mississippi, as before hinted,* takes at present the shortest cut to that part of the Gulf where it can find a basin deep and capacious enough to receive it.

During the night we passed Baton Rouge, the first point above New Orleans where any land higher and older than the alluvial plain comes up to the bank to constitute what is termed a bluff. The cliff there is only a few feet high. The next bluff is at Port Hudson, 25 miles higher up the river, and 165 miles above New Orleans. I had been urged by Dr. Carpenter to examine the geology of this bluff, which I had also wished to do, because Bartram, in his travels, in 1777, discovered there the existence of a fossil forest at the base of the tall cliff, and had commented with his usual sagacity on the magnitude of the geographical changes implied by its structure. The following are his words, which deserve the more attention, because the particular portion of the cliff described by him, has long ago been undermined and swept away by the Mississippi. "Next morning," says Bartram, "we set off again on our return home, and called by the way at the cliffs, which is a perpendicular bank or bluff, rising up out of the river near one hundred feet above the present surface of the water, whose active current sweeps along by it. From eight or nine feet below the loamy vegetative mold at top, to within four or five feet of the water, these cliffs present to view strata of clay, marl, and chalk of all colors, as brown, red, yellow, white, blue, and purple; there are separate strata of these various colors, as well as mixed or parti-colored: the lowest stratum next the water

* Ante, p. 132.

is exactly of the same black mud, or rich soil, as the adjacent low cypress swamps above and below the bluff; and here, in the cliffs, we see vast stumps of cypress and other trees which, at this day, grow in these low, wet swamps, and which range on a level with them. These stumps are sound, stand upright, and seem to be rotted off about two or three feet above the spread of their roots; their trunks, limbs, &c., lie in all directions about them. But when these swampy forests were growing, and by what cause they were cut off and overwhelmed by the various strata of earth, which now rise near one hundred feet above, at the brink of the cliffs, and two or three times that height, but a few hundred yards back, are inquiries perhaps not easily answered. The swelling heights, rising gradually over and beyond this precipice, are now adorned with high forests of stately *Magnolia*, *Liquidambar*, *Fagus*, *Quercus*, *Laurus*, *Morus*, *Juglans*, *Tilia*, *Halesia*, *Æsculus*, *Callicarpa*, *Liriodendron*," &c.*

Dr. Carpenter, in 1838, or sixty-one years after Bartram, made a careful investigation of this same bluff, having ascertained that in the interval the river had been continually wearing it away at such a rate as to expose to view a section several hundred feet to the eastward of that seen by his predecessor. I shall first give a brief abstract of Dr. Carpenter's observations, published in Silliman's Journal.†

"About the level of low water, at the bottom of the bluff, a bed of vegetable matter is exposed, consisting of sticks, leaves, and fruits, arranged in thin horizontal laminæ, with very thin layers of clay interposed. Among the fruits were observed the nuts of the swamp hickory (*Juglans aquatica*) very abundant, the burr-like pericarp of the sweet gum (*Liquidambar styraciflua*), and walnuts, the fruit of *Juglans nigra*. The logs lying horizontally are those of cypress (*Cupressus thyoides*), swamp hickory, a species of cotton wood (*Populus*), and other trees peculiar to the low swamps of Louisiana. Besides these there were a great number of erect stumps of the large deciduous cypress (*Taxodium distichum*) sending their roots deep into the clay beneath. This

* Bartram, "Travels in North America," p. 433.

† Vol. xxxvi. p. 118.

buried forest is covered by a bed of clay, twelve feet thick, and is followed by another superimposed bed of vegetable matter, four feet thick, containing logs and branches, half turned into lignite, and erect stumps, among which there are none of the large cypresses, as in the lower bed. Among the logs, the water-oak (*Quercus aquatica*) was recognizable, and a pine with a great deal of bark, and the strobiles of the *Pinus tæda*.

“ This upper forest points to the former existence, on the spot, of one of those swamps, occurring at higher levels, in which the *Cupressus disticha* (*Taxodium*) does not grow. Above the upper layer of erect stumps are various beds of clay, in all more than fifty feet thick, with two thin layers of vegetable matter intercalated ; and above the whole more than twenty feet of sand, the lower part of which included siliceous pebbles derived from some ancient rocks, and containing the marks of encrinites and corals (*Favosites*),” &c.

Dr. Carpenter, when he published this account in 1838, thought he had detected the distinct marks of the ax* on some of the logs accompanying the buried stumps ; but he informed me, in 1846, that he was mistaken, and that the apparent notches were caused by the gaping open of the bituminized wood, probably after shrinking and drying, of the truth of which I was myself convinced, after seeing the specimens. That the lowest bed had originally been a real cypress swamp, was proved beyond all doubt by the stumps being surrounded by those peculiar knobs or excrescences called cypress knees, which this tree throws out from its base, when it grows in a submerged soil. These knees sometimes rise up through the water from a depth of six or eight feet, and are supposed to supply the roots with air, as they are never formed when the cypress grows on dry ground.

At the time of my visit, the river was unfortunately too high to enable me to see the lowest deposit containing the memorials of this ancient forest, the geological interest of which is much enhanced by its having been seen by Bartram, and again by Carpenter, extending horizontally over a considerable area. I learnt from several residents at Port Hudson, and from Captain

* Silliman, *ibid.* p. 119.

Sellick, who commanded the *Rainbow*, that, last season, when the water was low, the stumps of the buried trees were as conspicuous as ever at the base of the cliff, which has been much undermined by the river since the year 1838, when Dr. Carpenter explored it. The fossil forest was 12 feet under water when I landed, but at higher levels I saw the trunks of two trees buried in a vertical position at different levels, each of them about $2\frac{1}{2}$ feet high. I estimated the height of the entire cliff to be about 75 feet, consisting in part of stiff unctuous clay, and partly of loam, but with no chalk, as stated by Bartram. A small streamlet, artificially led to the top of the bluff, had, within the last four years, cut out a ravine no less than sixty feet deep through the upper loamy beds. In the sections thus laid open, I saw precisely such deposits as a river would form in its bed, or in the swamps which it had occasionally flooded. Near the bottom was a layer of leaves, resembling those of the bay, with numerous roots of trees and wood in a fresher state than I ever saw them in any tertiary formation. Taking a canoe, I afterward proceeded to examine that part of the cliff which extends about a mile down the river's left bank, immediately below Port Hudson, where it is between seventy and eighty feet high. The deposits laid open to view were divisible into three groups, the topmost consisting of brown clay, the middle of whitish siliceous sand, and the lower of green clay. I found some men digging the middle or sandy stratum for making bricks, and they had just come upon a prostrate buried tree, black and carbonized, but not turned into lignite. I counted in it 220 rings of annual growth. Near it I found two other smaller fossil trunks, all lying as if they had been drift wood carried down by a river and buried in sand. One of the men pointed out to me that the structure of the wood showed distinctly that they belonged to three different species, one being oak, another hickory, and the third sassafras. Their texture seemed certainly that of distinct genera of trees, but for the accuracy of my informant's determination I can not vouch. At this point they told me the bluff has, in the course of the last eight years, lost ground no less than 200 feet by the encroachment of the river.

To prove that the present site of the buried forest before alluded to, must be far from the point where Bartram or even Carpenter saw it, an account was given me by the residents here, of several recent landslips near Port Hudson ; one in particular, a few years ago, when by the caving in of the bank, three acres of ground, fifty or sixty feet high, composed of clay and sand, and covered by a forest, sank down bodily in the river, and were then gradually washed away. One of the eye-witnesses related to me that the trees were at first seen to tremble, then large rents began to open in the soil deeper and deeper, after which the movement was such that the boughs of the trees lashed each other, and acorns and beech nuts were showered down like hail. A herd of pigs was so intent in devouring these, that they allowed themselves to be carried down vertically fifty feet, the subsidence occupying about five minutes. The outer edge of the bluff, with some of the swine, fell into the river, but these swam to the sunk part of the bluff, and joined their companions. The owners watched them anxiously till dusk, unable to go to their rescue ; but at length, to their surprise, they saw a leader, followed by all the rest, wind his way along narrow ledges on the face of the precipice, from which the fallen mass had been detached, and climb up to the top. Next morning, to their no less astonishment, they found the herd feeding again on the same perilous ground, and saw them again return by the same path at night.

I have dwelt at some length on the geological phenomena disclosed in the interesting sections of these bluffs, because I agree with Bartram and Carpenter, that they display a series of deposits similar to the modern formations of the alluvial plain and delta of the Mississippi. They lead us, therefore, to the important conclusion, that there have been changes in the relative level of land and sea since the establishment, in this part of the continent, of a geographical state of things approximating to that now prevailing. Then, as now, there were swamps in which the deciduous cypress and other trees grew, and became buried in mud, without any intermixture of sand or pebbles. At that remote period, also, drift wood was brought down from the upper country, and inclosed in sandy strata. Although I could not ascertain

the exact height above the level of the sea, of the fossil cypress swamp at Port Hudson, I presume it is less than thirty feet; and in order to explain the superposition of 150 feet of fresh-water sediment, we must imagine the gradual subsidence of fluviatile strata to a depth far below the level of the sea, followed by an upward movement to as great an amount. The depression must have taken place so slowly as to allow the river to raise the surface by sedimentary deposition continually, and never permit the sea to encroach and cover the area. It is quite conceivable, for example, that the present delta and alluvial plain should sink 150 feet without the salt water coming up even to New Orleans, provided the land went down only a few feet or inches in a century, and provided the ground was raised vertically to the same amount by fluviatile mud, sand, or vegetable matter. But if the land should go down even ten or twelve feet at once, the whole delta would be submerged beneath the sea. Were the downward movement here supposed to be followed by an upheaval to the extent of about 150 feet, and should the river then cut a channel through the upraised mass, we might expect to see the modern formation exhibit appearances similar to those of high antiquity above described at Port Hudson.

I shall endeavor, in the sequel, to show that oscillations of level, like those here assumed to account for the phenomena at Port Hudson, will explain other appearances, observable, not only in cliffs bounding the valley of the Mississippi, but in ancient alluvial terraces bordering the Ohio, and other tributaries of the great river.

CHAPTER XXXI.

Fontania near Port Hudson.—Lake Solitude.—Floating Island.—Bony Pike.—Story of the Devil's Swamp.—Embarking by Night in Steamboat.—Literary Clerk.—Old Levees undermined.—Succession of upright buried Trees in Bank.—Raccourci Cut-off.—Bar at Mouth of Red River.—Shelly Fresh-water Loam of Natchez.—Recent Ravines in Table-Land.—Bones of extinct Quadrupeds.—Human Fossil Bone.—Question of supposed co-existence of Man with extinct Mammalia discussed.—Tornado at Natchez.—Society, Country-Houses, and Gardens.—Landslips.—Indian Antiquities.

AFTER I had examined the bluff below Port Hudson, I went down the river in my boat to Fontania, a few miles to the south, to pay a visit to Mr. Faulkner, a proprietor to whom Dr. Carpenter had given me a letter of introduction. He received me with great politeness, and, at my request, accompanied me at once to see a crescent-shaped sheet of water on his estate, called Lake Solitude, evidently an ancient bed of the Mississippi, now deserted. It is one of the few examples of old channels which occur to the east of the great river, the general tendency of which is always to move from west to east. Of this eastward movement there is a striking monument on the other side of the Mississippi immediately opposite Port Hudson, called *Fausse Rivière*, a sheet of water of the usual horse-shoe form. One of my fellow passengers in the *Rainbow* had urged me to visit Lake Solitude, "because," said he, "there is a floating island in it, well wooded, on which a friend of mine once landed from a canoe, when, to his surprise, it began to sink with his weight. In great alarm he climbed a cypress tree, which also began immediately to go down with him as fast as he ascended. He mounted higher and higher into its boughs, until at length it ceased to subside, and, looking round, he saw in every direction, for a distance of fifty yards, the whole wood in motion." I wished much to know what foundation there could be for so marvelous a tale. It appears that

there is always a bayou or channel, connecting, during floods, each deserted bend or lake with the main river, through which large floating logs may pass. These often form rafts, and become covered with soil supporting shrubs and trees. At first such green islands are blown from one part of the lake to another by the winds, but the deciduous cypress, if it springs up in such a soil, sends down strong roots, many feet or yards long, so as to cast anchor in the muddy bottom, rendering the island stationary.

Lake Solitude, situated in lat. 31° N. is two miles and a half in circuit, and is most appropriately named, being a retired sheet of water, its borders overhung by the swamp willow, now just coming into leaf, and skirted by the tall cypress, from which long streamers of Spanish moss are hanging. On the east it is bounded by high ground, a prolongation of the bluff at Port Hudson, on which the hickory, the oak, and many splendid magnolias, with the beech, walnut, tulip tree, and holly, and a variety of beautiful shrubs are seen. The surface of the lake (except near the shore, where it is covered with the water lily) faithfully reflects the trees and sky, presenting, in this respect, a marked contrast to the yellow waters of the Mississippi. It is inhabited by hundreds of alligators and countless fish, and so many birds were swimming on it, or flying over it, that it seemed as if all the wild creatures which the steamers had scared away from the main river had taken refuge here. Several alligators were lying motionless, with their noses just above the surface of the water, resembling black logs. About fourteen years ago, some of them were not unfrequently seen here measuring fifteen feet in length, but they now rarely exceed eight feet. I observed a large gar-fish, or bony pike, called the alligator gar (*Lepidosteus*), leap nearly out of the water in pursuit of its prey. Its hard shining scales are so strong and difficult to pierce, that it can scarcely be shot. It can live longer out of water than any other fish of this country, having a large cellular swimming bladder, which is said almost to serve the purpose of a real lung. One of them has been known to seize the nostrils of a mule who was drinking, and only to be shaken off on dry ground, when its whole body had been dragged into the air.

On the boughs of the willows were perched several white cranes, while herons, cormorants, and water-rails were swimming on the lake, their various notes adding to the wildness of the scene. Shriller than all, as the evening came on, we heard the voice of the large bull-frog.

As we went back to the house, over the high ground, we saw three kinds of squirrels and many birds. So skillful was my companion with his rifle, that he brought down every bird which came within shot—owls, rice-birds, woodpeckers, and jays—that I might examine their plumage. I admired a beautiful cluster of the flowers and fruit of the red maple, about twenty feet above our heads. He offered to pick them for me, and, without delay, took aim so dexterously, as to sever the stem from the bough just below the blossom, without seeming to have injured the flower by a single shot. In the course of our walk, I observed several shrubs, almost hidden by the luxuriant growth of that most elegant of climbers, the yellow jessamine (*Gelsemium nitidum*), with its fragrant blossoms.

From these heights south of Port Hudson, we had a grand view of the great plain of the Mississippi, far to the south and west, an endless labyrinth of uninhabited swamps, covered with a variety of timber, and threaded with bayous, one resembling another so exactly, that many a stranger, who has entered them in a canoe, has wandered for days without being able to extricate himself from their woody mazes. Among these morasses, one called the Devil's Swamp was in sight, and I found a curious account of the origin of its name in a MS. dated 1776, of Caleb Carpenter, a relation of my New Orleans friend.

A German emigrant having settled near the bank of the Mississippi, in 1776, felled, with great labor, some lofty cypresses; but, happening one day to make a false turn in his canoe, entered, by mistake, a neighboring bayou. Every feature was so exactly like the scene where he had been toiling for weeks, that he could not question the identity of the spot. He saw all the same bends, both in the larger and smaller channels. He made out distinctly the same trees, among others the very individual cypresses which he had cut down. There they stood, erect and entire, without

retaining one mark of his ax. He concluded that some evil spirit had, in a single night, undone all the labors of many weeks ; and, seized with superstitious terror, he fled from the enchanted wood, never to return.

In order that I might not spend an indefinite time on the Mississippi, I determined to be prepared for a start in the first chance steamer which might be bound for Natchez, 140 miles distant, whenever an opportunity should offer, whether by day or night. I was told by my host that a trusty black servant had been already appointed to look out for a steamer, which was to convey some farm produce to a proprietor far off on the Red River. He proposed, therefore, to give orders to this negro to wake me if any boat bound for Natchez should appear in sight before morning. Accordingly, about an hour after midnight, I was roused from my slumbers, and went down over a sloping lawn to the steam-boat landing on the river's bank. The sky was clear, and it was bright moonlight, and the distant cries of the owls, and other night birds around Lake Solitude, were distinctly heard, mingled with the chirping of myriads of frogs. On the low bank my watchman had lighted a signal fire, and I heard the puffing of a steamer in the distance ascending the stream. She soon neared us, and, on being hailed, answered, "La Belle Creole, bound for Bayou Sara." This port was far short of my destination, and when we shouted "Natchez," the captain first asked if we had any wood to sell, and on learning there was none, sailed away. I returned to the house, and took another nap of several hours, when I received a second summons from my faithful sentinel. The scene was entirely changed ; it was nearly day-break, and the fogs rising from the marshes had begun to cover the river. I was in despair, fearing that our signal fire would not be discerned through the mist. Soon, however, we heard the loud gasping of the two steam-pipes sounding nearer and nearer, and a large steamer coming suddenly close to the landing, was announced as "the Talma of Cincinnati." In a few minutes I was crossing the narrow plank which led from the steep bank to the vessel, which was actually in motion as I walked over it, so that I was glad to find myself safe on deck.

They told me I must register my name at the office. The clerk asked me if I was the author of a work on geology, and being answered in the affirmative, wished to know if I was acquainted with Mr. Macaulay. On my saying yes, he took out a late number of the *Edinburgh Review*, and begged me to tell him whether the article on Addison was written by my friend, for he had been discussing this matter with a passenger that evening. When I had confirmed this opinion he thanked me, expressing much regret that he should not see me again, since I was to land next day at Natchez before he should be up. This conversation lasted but a few minutes, and in as many more I was in a good berth under a musquito net, listening to a huge bell tolling in the fog, to warn every flat-boat to get out of the way, on peril of being sent instantly to the bottom. In spite of this din, and that of the steam funnels and machinery, I soon fell asleep for the third time.

When I came on deck next day, all hands were at work, taking in wood at a landing below Bayou Sara, where I saw on the top of the river bank, now sixteen feet high, several striking memorials of the ravages of former inundations. Besides the newest levee, there was one which had given way previously to the great flood of 1844, and a still older one, which, although once parallel, was now cut off abruptly, and at right angles to the present course of the river. They reminded me of the remnant of an oval intrenchment at the edge of the cliff near New Haven in Sussex, and of those paths leading directly to the brink of precipices overhanging the sea in many maritime counties in England. Farther on, at another wooding station, in Adams County, Mississippi, I observed a bank eighteen feet in perpendicular height, and said to be forty-five feet high when the water is at its lowest. It was composed of sand, or sandy loam, indicating a comparatively rapid deposition. In such loam, no erect stumps and trunks of trees are met with, the sediment having accumulated on the margin of the river in a few years too fast to allow large trees to grow there. But in other places, where the bank consisted of fine, stiff clay, I saw here and there the buried stools of cypresses, and other trees, in an upright position, with their roots attached, sometimes

repeated at several different levels in the face of the same bank. I first remarked one of these at a point forty-five miles above New Orleans, and they increased in number as we ascended. When first told of this phenomenon, before visiting the Mississippi, it appeared to me very difficult of explanation. I soon, however, discovered that the great river, in its windings, often intersects the swamps or cypress basins which had been previously filled up with fine mud or vegetable matter, at various distances from the former river-channel.

Suppose an ancient bed of the Mississippi, or some low part of the plain, to become fit for the growth of cypress, yet to be occasionally flooded, so that the soil is slowly raised by fine mud, drift wood, or vegetable matter like peat. As the cypress (*Taxodium distichum*) often attains to the age of three or four centuries, and, according to many accounts, occasionally in Louisiana to that of two thousand years, it is clear that the bottoms of the oldest trees will often be enveloped in soil several feet deep, before they die, and rot down to the point where they have been covered up with mud. In the mean time other trees will have begun to grow on adjoining spots, at different and considerably higher levels, and eventually some of these will take root in soil deposited directly over the stump or decayed trunk of some of the first or oldest series of cypresses. They who have studied the delta affirm that such successive growths of trees are repeated through a perpendicular height of twenty-five feet without any change occurring in the level of the land.*

Proceeding up the river, we soon passed Bayou Sara on our right hand, and came to the isthmus called the Raccourci cut-off, across which a trench nine feet deep has been dug, in the hope that the Mississippi would sweep out a deep channel. This "cut-off," should it ever become the main channel, would enable a steamer to reach, in one mile, a point, to gain which costs now a circuit of twenty-six miles, and two and a half hours. Unfortunately, when they cleared the forest in this spot, the soil of the new canal was found to consist of a stiff blue clay,

* See Dickeson and Brown, Silliman's Journal, Second Series, vol. v. p. 17, Jan. 1848.

strengthened by innumerable roots of trees, and, in the flood of 1845, the surplus waters of the Mississippi poured through the cut with great velocity, yet failed to deepen it materially. By shortening the channel twenty-five miles, the fall of the river would be augmented, and the engineer flattered himself that the effect might extend as far up as the mouth of the Red River. By accelerating the current there it was hoped that a deeper passage might be kept open in the sand-bar, which now blocks up the navigation of that important tributary for the greater part of the year.

Some experienced pilots assured me, that the supposed shortening of the channel of the Mississippi, between its junction with the Ohio and New Orleans, was, in a great degree, a delusion. Instead of the boasted gain of fifty miles, they say that not a third of this distance has been realized. Immediately after the completion of a new cut-off, the Mississippi begins to restore the natural curvature of its channel by eating away one bank and throwing out a sand-bar on the opposite side.

Another fifty miles brought us to the mouth of the Red River, where I saw the formidable bar, before alluded to, covered, for the most part, by a growth of young willows and cotton-wood (*Populus angulata*). After leaving the mouth of Red River, we passed two bluffs on the left or eastern bank, one that of Fort Adams, a very picturesque line of precipices, the other called Ellis's Cliffs. In both I observed a predominance of white sand, similar to that seen in part of the bluff at Port Hudson.

At Natchez (where I rejoined my wife), there is a fine range of bluffs, several miles long, and more than 200 feet in perpendicular height, the base of which is washed by the river. The lower strata, laid open to view, consist of gravel and sand, destitute of organic remains, except some wood and silicified corals, and other fossils, which have been derived from older rocks; while the upper sixty feet are composed of yellow loam, presenting, as it wastes away, a vertical face toward the river. From the surface of this clayey precipice are seen, projecting in relief, the whitened and perfect shells of land-snails, of the genera *Helix*, *Helicina*, *Pupa*, *Cyclostoma*, *Achatina*, and *Succinea*. These

shells, of which we collected twenty species, are all specifically identical with those now inhabiting the valley of the Mississippi.

The resemblance of this loam to that fluvial silt of the valley of the Rhine, between Cologne and Basle, which is generally called "loess" and "lehm" in Alsace, is most perfect. In both countries the genera of shells are the same, and as, in the ancient alluvium of the Rhine, the loam sometimes passes into a lacustrine deposit containing shells of the genera *Lymnea*, *Planorbis*, and *Cyclas*, so I found at Washington, about seven miles inland, or eastward from Natchez, a similar passage of the American loam into a deposit evidently formed in a pond or lake. It consisted of marl containing shells of *Lymnea*, *Planorbis*, *Paludina*, *Physa*, and *Cyclas*, specifically agreeing with testacea now inhabiting the United States. With the land-shells before mentioned are found, at different depths in the loam, the remains of the mastodon; and in clay, immediately under the loam, and above the sand and gravel, entire skeletons have been met with of the megalonyx, associated with the bones of the horse, bear, stag, ox, and other quadrupeds, for the most part, if not all, of extinct species. This great loamy formation, with terrestrial and fresh-water shells, extends horizontally for about twelve miles inland, or eastward from the river, forming a platform about 200 feet high above the great plain of the Mississippi. In consequence, however, of the incoherent and destructible nature of the sandy clay, every streamlet flowing over what must originally have been a level table-land, has cut out for itself, in its way to the Mississippi, a deep gully or ravine. This excavating process has, of late years, proceeded with accelerated speed, especially in the course of the last thirty or thirty-five years. Some attribute the increased erosive action to partial clearings of the native forest, a cause of which the power has been remarkably displayed, as before stated, within the last twenty years, in Georgia.* Others refer the change mainly to the effects of the great earthquake of New Madrid, in 1811-12, by which this region was much fissured, ponds being dried up and many landslips caused.

* See ante, p. 29.

In company with Dr. Dickeson and Colonel Wales, I visited a narrow valley, hollowed out through the shelly loam recently named "the Mammoth ravine," from the fossils found there. Colonel Wiley, a proprietor of that part of the State of Mississippi, who knew the country well before the year 1812, assured me that this ravine, although now seven miles long, and in some parts sixty feet deep, with its numerous ramifications, has been entirely formed since the earthquake. He himself had plowed some of the land exactly over one spot which the gully now traverses.

A considerable sensation was recently caused in the public mind, both in America and Europe, by the announcement of the discovery of a fossil human bone, so associated with the remains of extinct quadrupeds, in "the Mammoth ravine," as to prove that man must have co-existed with the megalonyx and its contemporaries. Dr. Dickeson showed me the bone in question, admitted by all anatomists to be part of a human pelvis, and being a fragment of the *os innominatum*. He felt persuaded that it had been taken out of the clay underlying the loam, in the ravine above alluded to, about six miles from Natchez. I examined the perpendicular cliffs, which bound a part of this water-course, where the loam, unconsolidated as it is, retains its verticality, and found land-shells in great numbers at the depth of about thirty feet from the top. I was informed that the fossil remains of the mammoth (a name commonly applied in the United States to the mastodon) had been obtained, together with the bones of some other extinct mammalia, from below these shells in the undermined cliff. I could not ascertain, however, that the human pelvis had been actually dug out in the presence of a geologist, or any practiced observer, and its position unequivocally ascertained. Like most of the other fossils, it was, I believe, picked up in the bed of the stream, which would simply imply that it had been washed out of the cliffs. But the evidence of the antiquity of the bone depends entirely on the part of the precipice from which it was derived. It was stained black, as if buried in a peaty or vegetable soil, and may have been dislodged from some old Indian grave near the top, in which case it may only have been five, ten, or twenty centuries

old ; whereas, if it was really found in situ at the base of the precipice, its age would more probably exceed 100,000 years, as I shall endeavor to show in a subsequent chapter. Such a position, in fact, if well authenticated, would prove that man had lived in North America before the last great revolution in the physical geography of this continent had been accomplished ; in other words, that our race was more ancient than the modern valley, alluvial plain, and delta of the Mississippi—nay, what is more, was antecedent to the bluffs of Port Hudson and Natchez, already described. Now that elevated fresh-water formation, as I shall by and by endeavor to show, is the remnant of a river-plain and delta of extremely high antiquity ; and it would follow, if the human race was equally ancient, that it co-existed with one group of terrestrial mammalia, and, having survived its extinction, had seen another group of quadrupeds succeed and replace it.

In our excursion through the forest, from Washington to the Mammoth ravine, I crossed the path of the last tornado, which occurred May 17, 1840, one of three which have devastated this region since the year 1809. They all came from Texas, moving along from southwest to northeast, and laid waste a long strip of country, about a mile wide. The courses of each of the three whirlwinds were within a few miles of the other, and the last threw down many houses at Natchez, unroofed others, and leveled to the ground a railway terminus, causing the abandonment of a scheme for a rapid communication between Natchez, Vicksburg, and the State of Tennessee. On each side of the path of the tornado the land was finely timbered ; but where its force had been expended, old trees lay uprooted, and a growth of young wood was rising. Many large trunks had been broken off ten or twelve feet above the ground, and portions of the solid wood, torn and twisted into shreds, were still waving in the air.

This tornado checked the progress of Natchez, as did the removal of the seat of legislature to Jackson ; but it has suffered still more, since steam navigation has been so much improved, by the all-absorbing importance acquired by New Orleans as the

great emporium of the whole trade of the Mississippi. There are, however, so few bluffs on the great river, so few places where the channel will remain constant for ages to the same spot, that I can not doubt that this city must, in time, become large and prosperous.

It augurs favorably of the future prospects of civilization in America, that here, as elsewhere, we found the society most agreeable in places which have been the longest settled. If the political opinions and notions of honor cherished by the majority of the citizens of Natchez, had had their due weight in the legislation of the state, the fair fame of Mississippi, and her credit, would have stood as high as that of any other southern state. Many of the country-houses in the neighborhood are elegant, and some of the gardens belonging to them laid out in the English, others in the French style. In the latter are seen terraces, with statues and cut evergreens, straight walks with borders of flowers, terminated by views into the wild forest, the charms of both being heightened by contrast. Some of the hedges are made of that beautiful North American plant, the Gardenia, miscalled in England the Cape jessamine, others of the Cherokee rose, with its bright and shining leaves. It had already put forth some of its white flowers, which a month later would be in full blow. The woods here, when all the trees are in full foliage, and the tall magnolias in blossom, must be truly beautiful. But so intense is the heat, and such the danger of ague and the torment of musquitos, that, at that season, they who can afford to move, fly to some higher or more northern retreat.

On the steep slope of the bluffs at Natchez, below the vertical face of shelly loam, the Judas-tree, or red-bud (*Cercis canadensis*), was now in full flower, displaying a blaze of pink blossoms before it has put forth any leaves. I saw four landslips on these bluffs which have occurred within the last ten years, for the springs which burst from the sand ~~undermine~~ the clayey loam. They are instructive, as showing how the bluffs give way as the Mississippi gradually extends its course eastward. There is one hollow of ancient date, caused by a similar undermining, called the Devil's Punch-bowl, a picturesque, crater-shaped basin, of

about 300 yards diameter at the top, and 100 yards at the bottom, where cypresses and gum-trees are growing. At the top are seen the cotton-wood, the maple, and the magnolia, mixed with pines.

The name of Natchez has been derived from an Indian tribe, and on the highest part of the bluff, on an eminence called St. Rosalie, are some Indian mounds, from which Dr. Dickeson has obtained some curious remains of pottery, showing that some of the aboriginal inhabitants of the great valley had made much greater progress in the arts than their descendants whom the Europeans drove out. One morning, close to the spot where these antiquities were dug up, we saw a wild-looking group of Indians, whose aspect gave no token that their contact with Europeans had tended to revive the spirit of improvement which must once have animated some of their predecessors in this region.

CHAPTER XXXII.

Natchez.—Vidalia and Lake Concordia.—Hybernation of Alligator.—Bonfire on Floating Raft.—Grand Gulf.—Magnolia Steamer.—Vicksburg to Jackson (Mississippi) by Railway.—Fossils on Pearl River.—Ordinary at Jackson.—Story of Transfer of State-House from Natchez.—Vote by Ballot.—Popular Election of Judges.—Voyage from Vicksburg to Memphis.—Monotony of River Scenery.—Squall of Wind.—Actors on Board.—Negro mistaken for White.—Manners in the Backwoods.—Inquisitiveness.—Spoiled Children.—Equality and Leveling.—Silence of English Newspapers on Oregon Question.

March 15, 1846.—FROM Natchez we crossed the river, by the ferry, to Vidalia, situated on the low river plain, on a level with the base of the bluffs before described. We were accompanied by Mr. Davis, a large proprietor, who took us to see his negro-houses, all neatly built and well whitewashed. Even in this cursory view we could perceive how much the comfort and bodily wants of the slaves had been attended to. We had now left the country where sugar and cotton are the staple products, and had just entered the region where cotton and Indian corn are cultivated together. Here, as in Louisiana, the negroes constitute half, and sometimes more than half, the population on the borders of the Mississippi.

At Vidalia we were joined by Mr. Forshey, the engineer, who went with us to Lake Concordia, a fine example of an old bend of the Mississippi, recently detached and converted into a crescent-shaped lake, surrounded by wood. It is a fine sheet of water, fifteen miles long, if measured by a curved line drawn through the middle. The old levee, or embankment, is still seen ; but it is no longer necessary to keep it in repair, for, a few years ago, the channel which once connected this bend with the main river was silted up. Opposite Natchez the depth of the Mississippi varies from 100 feet to 150 feet, but Lake Concordia has nowhere a greater depth than 40 feet. There are

thirteen similar lakes between the mouth of the Arkansas and Baton Rouge, all near the Mississippi, and produced by cut-offs; and so numerous are the channels which communicate from one to the other, that a canoe may pass, during the flood season, from Lake Concordia, and reach the Gulf of Mexico without once entering the Mississippi. We were shown a cypress tree on the borders of this deserted river bend, from under the roots of which, a few days before the time of our visit, a she alligator had come out on a warm day, the place of her hybernation appearing to be half in the mud and half in the water. She brought out with her two broods, one born in the preceding summer, which were six inches long, and the others, an older set, about a foot long. When Mr. Forshey approached them, the young ones yelped like puppies, and the old one hissed. On the shore of the lake we caught a tortoise, called here the snapping-turtle, and found that all its feet had been bitten off—devoured, our companions supposed, by predaceous fish. The fresh-water shells, of which we obtained specimens from the lake, belong to the genera *Lymnea*, *Planorbis*, *Paludina*, *Anchylotus*, *Physa*, *Cyclas*, and *Unio*. We put up flights of water-fowl of various species, chiefly wild ducks, which were swimming about. On the top of a pole, driven into the mud near the margin of the lake, was perched a kingfisher, and two cormorants were wheeling round it, one with a fish in its mouth, which the other was trying to snatch away. The water, although much clearer than the Mississippi, was not transparent, for it had communicated, during the late inundations, with the great river. In this manner sediment is annually introduced into such basins, and in the course of ages Lake Concordia may become so shallow as to support a forest of swamp timber. Some modern concretions of clay and lime, and of clay containing iron, which I picked up from the mud of the Mississippi bordering this lake, were so like those associated with the ancient buried forest at Port Hudson, and the shelly loam of Natchez, as to confirm me in the opinion before expressed, that the cliffs there, although of very high antiquity, correspond in origin with the recent fluvial formations of the alluvial plain.

March 17.—We established ourselves in the wharf-boat at

Natchez, prepared for a start in the first steamer which would take us to Grand Gulf, fifty miles higher up. We amused ourselves by watching a party of young negro boys, who collected the drift wood which bordered the river, and, having tied it together into a raft, heaped some dead branches of trees upon it, placing a layer of shavings under the pile. Having set it on fire, they pushed it off from the shore, and exulted as they saw the floating bonfire, in the dusk of the evening, throwing a glaring light on the bluffs, town, and shipping. The raft was carried round and round in the great eddies near the bank, and the urchins shouted when their love of mischief was gratified by seeing the alarm of the boatmen, each of whom was observing the wandering fire with some anxiety, lest it should come too near his own craft. In the cabin of the wharf-boat we found no furniture, but were supplied with two chairs, which, like the walls and ceiling, were of unpainted wood. As it grew dark, they brought in a table and a single candle. We were not sorry when the Peytona was announced, and we were ushered into a splendid saloon, 150 feet long, lighted by two large chandeliers suspended from the ceiling, and supplied with brilliant gas, manufactured on board. The mattresses of our beds were elastic, made of India rubber, no unmeaning luxury, for we were awakened before morning by the bumping of the boat against one floating log after another, and, in spite of the frequent stoppage of the engine, no small damage was done to the paddle-wheels, which got entangled with the drift timber. We reached Grand Gulf when morning had scarcely dawned, and found the floor of the saloon covered with the sleeping colored servants, over whom we had to step. The river had risen twenty-five feet in two days, and was more turbid than we had yet seen it.

The bluff at Grand Gulf is about 180 feet high, the uppermost 60 feet, composed, as at Natchez, of yellow loam or loess, beneath which was white quartzose sand, partially concreted into solid sandstone, which is quarried here for building. From the summit, the river-plain to the westward seemed as level, blue, and boundless as the ocean. As we had now traveled two degrees of latitude northward, the spring was not more advanced

than when we left New Orleans, but the woods crowning the bluffs are beautiful from the variety of trees, many of them evergreens, and we were charmed with the melody of the mocking-birds, and the warm sun brought out many large and brilliantly colored butterflies, and more insects of other kinds than I had yet seen in the south. Among these were a beetle (*Phaneus carnifex*), with green and gold wing-cases, and a horn on the thorax. The name of bug is given to all beetles (*Coleoptera*) here, and does not seem to awaken the same unpleasant associations as it suggests to English ears. Even the elegant fire-fly is called a lightning-bug, and ladies who have diamond beetles set in brooches, ask you to admire their beautiful bugs. The Londoners, by way of compensation, miscall the cockroach a black beetle.

From Grand Gulf we embarked in the Magnolia, which had brought my wife to Natchez, and, having since made a trip to St. Louis and New Orleans, was on its return up the river. It is a new boat, and, among other improvements, has a separate sleeping cabin for the colored servants. The furniture in the principal saloon is of fine Utrecht velvet, and the hanging lustres for gas very brilliant: the beds excellent; but the powerful vibration caused by the machinery far from agreeable. Our state room contained a chest of drawers, and cupboards for hanging up ladies' dresses. Ample time was allowed for dinner, and we thought the fare only too sumptuous. The repast began with turtle soup, and two kinds of fish; then followed a variety of made dishes, admirably cooked, and then a course of cocoa-nut pies, jellies, preserved bananas, oranges, grapes, and ice-creams, concluding with coffee. The claret was excellent, and it may seem strange, at first, that they who indulge in such luxuries, can drink freely of the opaque, unfiltered water of the Mississippi. But this fluid has, at least the merit of being cool on a hot day, and is believed to be very wholesome. We found it pleasant to the taste, however untempting to the sight. Few of the praises bestowed by Denham on the Thames can be lavished on the Mississippi; for, though deep, it is not clear, nor is it "without o'erflowing full." Yet, in spite of the occasional undermining

of forests on its banks, it may be truly characterized as "strong, without rage;" absorbing, as it does, in its course, one great tributary after another, several of them scarcely inferior in width to itself, without widening its channel, and in this manner carrying down noiselessly to the sea its vast column of water and solid matter, while the greater part of its alluvial plain is left undisturbed.

A settler at Natchez told us he had lived on the great river long enough to admire it, for the ease with which it performs its mighty work; and to fear it, so often had he witnessed the wreck of vessels and the loss of lives. "If you fall overboard," he said, "in the middle of the Atlantic, you may rise again and be saved; but here you are sucked down by an eddy, and the waters, closing over you, are so turbid, that you are never seen again."

March 19.—At Vicksburg, where we next landed, I found the bluffs, forming the eastern boundary of the great plain, similar, in their upper part, to those of Natchez; but beneath the fresh-water loam and sand were seen, at the base of the cliffs, a marine tertiary deposit, of the Eocene period, in which we collected many shells and corals. (See fig. 10, p. 193; and 3, fig. 11, p. 196.)

Leaving my wife to rest at the hotel, I made a rapid trip by railway, fifty-five miles eastward, to Jackson, the capital of the State of Mississippi. For the first ten miles, the cars traversed a table-land, corresponding in height with the summit of the bluff at Vicksburg, and preserving an even surface, except where gullies had been hollowed out in the soft shelly loam or loess. These are numerous, and it had been necessary to throw bridges over many of them so as to preserve the level of the road. It was curious to observe, in the cuttings made through the loam, that each precipitous face retained its perpendicularity, as in natural sections, although composed of materials wholly unconsolidated. Farther to the east, the Eocene strata, belonging to the same series, which are seen at the bottom of the bluffs at Vicksburg, rise up to the surface from beneath the fresh-water loam, which attains an elevation of about 250 feet above the sea, and then gives place to older rocks.

We passed through large forests of oaks and beeches, just

coming into leaf, in which were some green hollies. The red-bud, in blossom, was conspicuous in some of the woods. In the wet grounds were cane-brakes, willows, and magnolias. I observed, in a large clearing, three plows following each other, one guided by a man, and the others each by a negro woman. When we reached the Big Black River, twelve miles from Vicksburg, we passed over a long wooden bridge and viaduct, built on piles, nearly a mile in length. In about four hours, we arrived at the town of Jackson. I was wholly without letters of introduction, having suddenly determined on this excursion, and knew not the name of a single individual; which I regretted the more, as I had only a few hours of daylight at my disposal, and was to return by the cars at noon the day following. I inquired, as I had often done in France on similar occasions, for the nearest *pharmacien*, or chemist, and, being shown a shop, asked if they knew any one who was interested in geology. The chemist informed me that Dr. Gist, a physician, lodged in the floor above, and might assist me. Fortunately, this gentleman was at home, and, telling me he had read my work on Geology, he presented me with some fossil shells and corals collected by him in the neighborhood; and, within ten minutes of my "landing" from the cars, we were on our way together to explore the dried-up channel of a small tributary of the Pearl River, where I found a rich harvest of fossil marine shells and zoophytes. When we parted, my excellent guide agreed to accompany me, early the next morning, many miles in another direction.

On entering my hotel, after dark, I was informed that supper was ready, and was conducted to a large ordinary, crowded chiefly by lawyers, who were attending the courts here. The landlord, General A——, formerly of the Tennessee militia, played the part of master of the ceremonies, much to my amusement. He first obtained silence by exclaiming, with the loud voice of a herald, "Gentlemen, we are a great people," and then called out the names of all the viands on his long table and sideboard, beginning with "Beef-steak, with or without onions, roast turkey, pork, hominy, fish, eggs, &c., and ending with a list of various drinkables, the last of which was "tea, foreign and domestic."

Curiosity led me to order the last-mentioned beverage ; but I soon repented, finding it to be a liquid of a pink color, made of the root of the sassafras tree, and having a very medicinal taste. I was told that many here drink it for their health ; but the general, seeing that I did not relish it, supplied me with some good "foreign" tea. My host then introduced me to several of the lawyers who sat near me, which gave me an opportunity of asking whether there was any truth in the story told me by some of the Whigs at New Orleans, of the manner in which the seat of legislature had been transferred from Natchez to Jackson. I related the story, which was as follows :—"Natchez was the metropolis of the state, and the chief town of Adams County, which was so wealthy as to pay a third of all the taxes in Mississippi. It was a city to which the richest and best-informed citizens resorted, representing both the landed and moneyed interests of the state. It was, moreover, a center of communication, because it commanded the navigation of the great river. That the Houses of Legislature should meet here, was so natural and convenient, so fitted to promote good government, that the Democratic party could not be expected to put up, for many years, with an arrangement of affairs so reasonable and advantageous. They accordingly decided, by a majority, that some change must be made, and gave orders to a surveyor to discover the exact geographical center of the state. He found it in a wilderness, about fifty miles in a straight line east of Natchez, and pointed out an old cypress tree, in the middle of a swamp, accessible only by a canoe, as the spot they were in search of. This was welcome news ; all might now be placed on a footing of equality, the spot being equally inaccessible and inconvenient for all. When the architect, however, came to build the capitol, he took the liberty, instead of erecting the edifice on piles in the center of the swamp, to place it on an adjoining rising ground, from which they had cleared away the native wood, a serious abandonment of principle, as it was several hundred yards from the true geographical center."

When my auditors had done laughing at this Louisiana version of a passage in their history, they said, the tale, after all, was not so exaggerated as it might have been, considering the vexation

under which the New Orleans Whigs were smarting, in having to go to Baton Rouge. They could show me, they said, the swamp on the Pearl River, which must have been alluded to. That river, though now only boatable, might, they declared, be made navigable to steamboats, when the rafts of drift timber were cleared away, and they might then have a direct commercial intercourse with the Gulf of Mexico. The soil, also, surrounding Jackson, had proved to be very fertile, and the railway had brought the place within three or four hours of Natchez, now their port. In short, their town was flourishing, by aid of natural advantages, and the patronage of the Legislature and Law Courts.

Next day, after a geological excursion, I was taken to see the State House and Governor's Mansion, both handsome and commodious, and built in a good style of architecture, but at great expense, at a time when the price of labor happened to be unusually high. I heard much regret expressed at the debts they had incurred, and at the refusal to acknowledge them in 1841. One lawyer, a member of the Legislature, declared his conviction that the repudiation of the state debt would not have been carried in his county, but for the facility afforded by secret voting. The same individuals, he said, who openly professed a more honorable line of conduct, must, out of selfishness, have taken advantage of the ballot-box to evade an increase of taxation, otherwise there could not have been a majority in favor of disowning their liabilities. This was one of the few instances in which I heard the ballot condemned in the United States; yet the position of the laboring and middle classes is, comparatively, so independent here, in relation to their rich employers, that the chief arguments relied upon in England in favor of secret voting, would seem to be inapplicable.

The dependence of the judges, for their election, on the popular suffrage, appears to have been carried farther in Mississippi than in any other state. I was told that rival candidates for the bench and chancellorship, have been known to canvass for votes in taverns, and have been asked what construction they put on certain statutes relating to banks chartered by the state, just as, in an ordinary election for representatives, men are asked what

are their opinions, and how they would vote on certain questions. I met with more men of property in Mississippi who spoke as if they belonged to an oppressed class, governed by a rude, ignorant, and coarse democracy, than in any other part of my tour. "Many of our poorest citizens," they said, "would freely admit, that nothing is so difficult, for the individual, as self-government, and yet hold that nothing is so easy and safe as self-government for the million, even where education has been carried no farther than here, where there are still seven counties without a single school-house, and large districts where the inhabitants have but recently been converted to Christianity by itinerant Methodists. They forget that even honorable and enlightened men will sometimes do; in their corporate capacity, what each individual would be ashamed to do if he acted singly." When I heard these remarks, and reflected that even in those parts of the state where the whites are most advanced, as in Adams County, more than half the population are slaves, I felt more surprise that English capitalists had lent so much money to Mississippi, than that they had repented of it. At the same time there is more hope for the future, for education must come.

The town of Vicksburg is beautifully situated on the slope of a wooded bluff, about 180 feet high, and walks might be made, commanding the river, which would be delightful. At present no one can roam along the paths in the suburbs, as they are disgracefully filthy.*

We took our passage in the Andrew Jackson steamer, from Vicksburg to Memphis, a distance of 390 miles, and paid only six dollars each (25 shillings), board and lodging included. The monotony of the scenery on the great river for several hundred miles together, is such as to grow wearisome. Scarcely any vessels with sails are seen, all the old schooners and smaller craft having been superseded by the great steam-ships. The traveler becomes tired of always seeing a caving bank on one side, and an advancing sand-bar, covered with willows and poplars, on the

* For observations on the Geology of Jackson and Vicksburg, see a paper by the Author, *Journ. of Geol. Soc. London*, vol. iv. p. 15, 1847, and *Silliman's Journal*, Second Series, vol. iv. p. 186, Sept. 1847.

other; the successive growths of young trees rising to greater heights, one tier above another, as before described, below New Orleans. The water, at this season, is too turbid to reflect the sky or the trees on its bank. The aspect of things, day after day, is so exactly similar, that it might seem as necessary to take astronomical observations, in order to discover what progress one has made, as if the voyage were in mid-Atlantic. That our course is northward, is indicated by the willows on the banks growing less green, and a diminishing quantity of gray moss hanging from the trees. The red maple has also disappeared. When I landed at wooding stations, I saw, on the damp ground beneath the trees, abundance of mosses, with scarcely a blade of grass, while the only wild flowers were a few violets and a white bramble. The young leaves of the poplars are most fragrant in the night air. We were now in latitude 34° north, passing the mouths of the Arkansas and White rivers.

The village of Napoleon, 212 miles above Vicksburg, at the mouth of the Arkansas, had suffered much by the floods of 1844. Its red, muddy waters are hardly mixed up thoroughly with the Mississippi till they reach Vicksburg. They often bring down much ice into the Mississippi. The White River is said to be navigable for about six hundred miles above its mouth.

Our steamer, the Andrew Jackson, bound for Cincinnati, carrying a heavy cargo of molasses, was eight feet deep in the water. To avoid the drift wood, which impeded her progress, the captain, on arriving at Island Eighty-four (for they are all numbered, beginning from the mouth of the Ohio), determined to take a short cut between that island and the left river bank. The lead was heaved, and the decreasing depth, from ten feet to eight and a half, was called out; our vessel then grazed the bottom for a moment, but fortunately got off again. There was so much sameness in the navigation, that such an incident was quite a relief. Soon afterward, March 23d, some variety was afforded by a squall of wind, accompanied by lightning. I never expected to see waves of such magnitude, and was surprised to learn, that in some reaches, where the water extends ten miles in a straight line, a strong wind blowing against the current will

cause large steamers to pitch so as to make many passengers seasick ; but this rarely happens. In the night we had often to draw up to the bank, wherever a signal-fire was lighted, finding sometimes a single passenger waiting to be taken on board.

There were many actors on board, and, among others, a pleasing young woman, who turned out to be the manager's wife, returning with her family of young children and sick husband from Vicksburg, where she complained that the drama was at a low ebb, and where, as in many other cities in the south, the drunken habits of the inferior actors made the profession by no means a pleasant one for a woman. She was longing for an engagement in some "eastern theater," where, she told my wife, she would willingly take less pay, and would not object to undertake the part of "first old woman" for eighteen dollars a week, as most of the actresses, being desirous of looking young and pretty, compete eagerly for the character of "first juvenile." She liked much to act chambermaid, as then she was not expected to learn her part so accurately. She had a real feeling of enthusiasm for her art, and great admiration for Mrs. Kean, and spoke with satisfaction of having once acted second to her when she was Miss Ellen Tree. During her husband's illness at Vicksburg, she had been obliged to take the management of the theater herself, and had good reason to lament that the temperance movement had not reached so far west. The physician, after attending his patient for many weeks in a fever, remitted to them a bill of fifty dollars, one only of many similar acts of generosity in the members of this profession which came to my knowledge in the course of my tour. This actress had with her a young maid, fairer than many an English brunette, but who, though a free woman, did not happen to belong to the white aristocracy. The stewardess came into the cabin and summoned her to dinner, and she, doing as she was bid, sat down at the second table, where the officers of the ship and the white children were dining. When her repast was half finished, her master and mistress suddenly discovered the prodigious breach of decorum which their attendant was perpetrating, and, calling her away from the table, began explaining to one lady after another, especially those with

whose children she had been sitting, that she was really a good girl, who knew no better. The stewardess also, knowing she should incur blame, came and apologized for her mistake, observing that the girl was quite undistinguishable by her complexion from a white. There was a quadroon lady on board, of very respectable appearance and manners, who was taking all her meals in her own state-room, thus avoiding the risk of meeting with similar indignities. It is not surprising, in such a state of society, that they who belong to the degraded race, should make every effort to conceal the fact; or, if that be impossible, to assimilate themselves, as far as they can, to individuals of the dominant race. In proportion to the mixture of white blood, the woolly, short hair of the negro lengthens and straightens, and the ambition of the black women is to contend with nature in torturing their hair, by combing and plaiting, till it resembles, as near as possible, the flowing locks of the whites.

At one of the wooding stations, a countryman came on board with his wife, a half-breed Indian. She had straight black hair, and a soft, mild eye. She sat at table with us, taking her place on terms of perfect equality, no distinction of caste being made in this case.

As I was pacing the deck, one passenger after another eyed my short-sight glass, suspended by a ribbon round my neck, with much curiosity. Some of them asked me to read for them the name inscribed on the stern of a steamer so far off that I doubted whether a good telescope would have enabled me to do more than discern the exact place where the name was written. Others, abruptly seizing the glass, without leave or apology, brought their heads into close contact with mine, and, looking through it, exclaimed, in a disappointed and half reproachful tone, that they could see nothing. Meanwhile, the wives and daughters of passengers of the same class, were sitting idle in the ladies' cabin, occasionally taking my wife's embroidery out of her hand, without asking leave, and examining it, with many comments, usually, however, in a complimentary strain. To one who is studying the geology of the valley of the Mississippi, the society of such companions may be endurable for a few weeks. He ought to recollect that they form the great majority of those who support

these noble steamers, without which such researches could not be pursued except by an indefinite sacrifice of time. But we sometimes doubted how far an English party, traveling for mere amusement, would enjoy themselves. If they venture on the experiment, they had better not take with them an English maid-servant, unless they are prepared for her being transformed into an equal. It would be safer to engage some one of that too numerous class, commonly called "humble companions," who might occasionally enter into society with them. Ladies who can dispense with such assistance, will find the maids in the inns, whether white or colored, most attentive.

We were not asked more questions in regard to our private affairs than we had often been accustomed to submit to when traveling in France and Scotland. Nor had I any reason to complain; for when I had satisfied the curious as to my age, the number of my children, how we liked the country, and many other particulars, often asked very abruptly by one just come on board, I had no ceremony in retaliating on him, and putting to him as many queries in my turn. Every one must admit that the answers you commonly receive are most intelligent. Americans of the higher classes seemed more put out than we were, when thus catechised.

One of them, before we left Boston, as if determined that nothing should surprise me, related many diverting anecdotes to illustrate the inquisitive turn of his countrymen. Among other stories he gave a lively description of a New Englander who was seated by a reserved companion in a railway car, and who, by way of beginning a conversation, said, "Are you a bachelor?" To which the other replied, drily, "No, I'm not."—"You are a married man?" continued he.—"No, I'm not."—"Then you must be a widower?"—"No, I'm not." Here there was a short pause; but the undaunted querist returned to the charge, observing, "If your are neither a bachelor, nor a married man, nor a widower, what in the world can you be?"—"If you must know," said the other, "I'm a divorced man!"

Another story, told me by the same friend, was that a gentleman being asked, in a stage coach, how he had lost his leg, made his fellow travelers promise that if he told them they would put

no more questions on the subject. He then said, "It was bitten off." To have thus precluded them for the rest of a long journey from asking how it was bitten off, was a truly ingenious method of putting impertinent curiosity on the rack.

When my wife first entered the ladies' cabin, she found every one of the numerous rocking-chairs filled with a mother suckling an infant. As none of them had nurses or servants, all their other children were at large, and might have been a great resource to passengers suffering from ennui, had they been under tolerable control. As it was, they were so riotous and undisciplined, as to be the torment of all who approached them. "How fortunate you are," said one of the mothers to my wife, "to be without children; they are so ungovernable, and, if you switch them, they sulk, or go into hysterics." The threat of "I'll switch you," is forever vociferated in an angry tone, but never carried into execution. One genteel and pleasing young lady sat down by my wife, and began conversation by saying, "You hate children, don't you?" intimating that such were her own feelings. A medical man, in large practice, in one of the southern states, told us he often lost young patients in fevers, and other cases where excitement of the nerves was dangerous, by the habitual inability of the parents to exert the least command over their children. We saw an instance where a young girl, in considerable danger, threw the medicine into the physician's face, and heaped most abusive epithets upon him.

The Director of the State Penitentiary, in Georgia, told me, that he had been at some pains to trace out the history of the most desperate characters under his charge, and found that they had been invariably spoilt children; and, he added, if young Americans were not called upon to act for themselves at so early an age, and undergo the rubs and discipline of the world, they would be more vicious and immoral than the people of any other nation. Yet there is no country where children ought to be so great a blessing, or where they can be so easily provided for. Parents have not the excuse of Mrs. MacClarty, in the "Cottagers of Glenburnie," when she exclaims, "If I don't give the boy his own way, what else have I to give him?" but it is probably because so many of these western settlers have risen recently from

Mrs. MacClarty's grade in society, that they have retained her maxims for the management of their children; for the young people in the families of the best class of society in the United States, are often kept in as good order, and are as engaging in their manners, as they are in any part of Europe.

Many young Americans have been sent to school in Switzerland, and I have heard their teachers, who found them less manageable than English or Swiss boys, maintain that they must all of them have some dash of wild Indian blood in their veins. Englishmen, on the other hand, sometimes attribute the same character to republican institutions; but, in fact, they are spoilt long before they are old enough to know that they are not born under an absolute monarchy.

Some officers of the army, who had been educated at West Point, a lieutenant in the navy, and a judge, with his family, from a southern state, were agreeable companions on this voyage, and differed as much in manners from the majority of our mess-mates, as persons of the same rank in Europe would have done. There seemed, to us, to be a great want, in such steamers, of a second cabin, at a price intermediate between that of the first cabin and the deck. A poor emigrant, who was roughing it in the latter place, remarked to me truly, that they were treated there like dogs, and had nothing but a plank to sleep upon. He was paying highly for his wife and family, who had places in the first cabin. Among all who have paid for these, a recognition of perfect equality is scrupulously exacted. Not only would a man of rank and ancient family, but one of the most refined manners, and superior knowledge and education, find himself treated as entitled to no more deference or respect than the rudest traveler. Plato's definition of a man, "*bipes implume*," "*a featherless biped*," would be most appropriate to one who was journeying in such company. To a certain extent, however, the manners of the ruder members of this society are improved by such intercourse, and there is some leveling up as well as leveling down. The European traveler must also bear in mind, that it would be no discredit to those who are settling in this wilderness—especially when Europe pours into it, annually, her hun-

dreds of thousands of ignorant and disappointed emigrants—if the accommodation was of the rudest kind; if there were no steamers in whose machinery the latest improvements had been adopted, many of them invented in the United States; and if the cabin was not provided with good libraries, or the table covered with newspapers, literary magazines, and reviews. It is precisely because there is so much civilization in the western states, that foreigners criticise them unfairly, contrasting their condition with the highest standard of older countries.

The authority of the captain is absolute, and he does not hesitate, if any unruly spirit is refractory, and refuses to conform to the regulations of the ship, to put him ashore at the nearest place on the bank where he can be landed; but I never happened to see so strong a measure resorted to.

The newspapers on the cabin table of the Andrew Jackson had a column headed in capitals, "Five Weeks later from Europe." The mail packet had been detained by adverse winds longer than usual, and the uneasiness respecting the chances of a war with England, still the subject of debate in Congress, had risen to a great height. Many lovers of peace had misgivings lest the English democracy, growing at last impatient, should express themselves with violence, and excite the war party here. The first glance at the news relieved them from anxiety, for the English were entirely absorbed with Free Trade, Cheap Bread, and the admission of foreign grain without duty. The Cabinet were too well satisfied that the people's attention was drawn off from foreign affairs to obtrude the American question unnecessarily on their attention. One of the politicians on board, who had been reading an account of the proceedings of the Anti-Corn-Law League, and the parliamentary debates on the Corn Duties, confessed to me, that the omission of all allusion to America—the English being so entirely occupied with their domestic affairs—wounded his feelings. "Here we have been talking," he said, "for three months about nothing else but Oregon, imagining that the whole world was looking on in suspense, at this momentous debate, and even in Great Britain it has been forgotten for five entire weeks! What an absurd figure we are cutting!"

CHAPTER XXXIII.

Bluffs at Memphis.—New Madrid.—No Inn.—Undermining of River Bank.—Examination of Country shaken by Earthquake of 1811-12.—Effects of Passage of Waves through Alluvial Soil.—Circular Cavities or Sand-Bursts.—Open Fissures.—Lake Eulalie drained by Shocks.—Borders of Sunk Country, west of New Madrid.—Dead Trees standing erect.—A slight Shock felt.—Trade in Peltries increased by Earthquake.—Trees erect in new-formed Lakes.—Indian Tradition of Shocks.—Dreary Forest Scene.—Rough Quarters.—Slavery in Missouri.

March 24, 1846.—AT length we reached Memphis, in the State of Tennessee. The town on which this ancient and venerable name is conferred, appears the newest of the large places we have yet seen on the Mississippi. It is growing with great rapidity, standing on a bluff now fifty-two feet above the level of the water when the river is high. The cliff is the abrupt termination of deposits similar to those of fresh-water origin, which I have before alluded to at Natchez and Vicksburg. A mass of yellow loam, forty feet thick, reposes on sand with quartz pebbles, which rests on clay, not visible at the time of my visit. Such a site for a town, in spite of the slow undermining of the cliffs, is permanent by comparison with the ordinary banks of the river for hundreds of miles continuously; for, as a general rule, the stream in the alluvial plain is either encroaching a foot or more annually, so as to wash away buildings, if there be any on the bank, or is retreating, so that a port soon becomes an inland town. The people of Memphis are ambitious that their city should be a great naval arsenal, and there are considerable naval stores here; but as frigates require from eighteen to twenty-three feet water, and men-of-war thirty feet, while the bar at the mouth of the Mississippi affords at present no more than sixteen feet water, their hopes can not be realized till a ship canal is made from some point on the Mississippi to the Gulf of Mexico.

After we left Memphis, we were shown, on the Tennessee

bank of the river, a log cabin, where they said General Jackson began his career ; one of his claims to popularity with the democratic party consisting in his having risen from a very humble origin. The advantages of a more liberal education, which a rival might have possessed who had begun life in easier circumstances, would not have countervailed, in the present stage of progress of the Union, the prestige which attaches to the idea of a man's having made his way by his own merits.

March 25.—From Memphis we sailed in a smaller steamer for 170 miles, first between the states of Tennessee and Arkansas, and then between Tennessee and Missouri, and arrived very late at night at New Madrid, a small village on the western bank of the river, where I intended to stay and make geological observations on the region shaken by the great earthquake of 1811–12. So many of our American friends had tried to dissuade us from sojourning in so rude a place, that we were prepared for the worst. In the wharf-boat, at least, I expected to find a bed for the first night, and proposed to seek accommodation elsewhere the next day ; but, to my dismay, the keeper of this floating tavern told me, when I landed, that he had just come there, had nothing as yet “fixed,” and could not receive us. I also learnt that the only inn in New Madrid had been given up for want of custom. Leaving, therefore, my wife sitting by the stove in the wharf-boat, and taking a negro as my guide, I began to pace the dark and silent streets. First I applied in vain for admittance at the old tavern, then to a storekeeper in the neighborhood, who informed me that a German baker, near the river, sometimes took in lodgers. I next roused this man and his wife from their slumbers ; their only spare room was occupied, but they asked their lodger if he would give it up to us. No sum of money would have bribed him to comply, as I was satisfied when I knew him better, but his good nature led him at once to assent cheerfully. We were soon shown into the apartment, a kind of scullery, with a mattress on the floor, on which we slept, and did not make our appearance next morning till half-past eight o'clock. We then apologized, fearing we had kept them waiting for breakfast. They said, good humoredly, they had

indeed waited from six o'clock, and it was now near their dinner time! The young German, originally from near Strasburg, a man of simple manners, regarded himself as belonging to a different station in society, and would have acted as waiter till we had finished our repast, had not his wife, a native-born American, from the State of Indiana, insisted on his sitting down to table. They were so poor, that they had no servants, not even a negro boy or girl, and two children to look after. The fare was of the humblest kind, bread of Indian corn, bacon, and thick coffee. Some of the indispensable articles of the breakfast table equipage had been purchased, as we afterward discovered, expressly for our use that morning. The lodger, "Uncle John," was an old bachelor in easy circumstances, fond of fishing, who had come here to indulge in that sport. He was an old pilot, who had visited half the ports in the Mediterranean, as well as Great Britain, and was quite a character. He could tell many a good story of his adventures, and, like many natives of Louisiana, could bear to be contradicted on any point rather than hear the healthiness of New Orleans called in question. His manners, and those of our host and hostess toward each other and to us, were very polite, and never approached undue familiarity. Uncle John assured me that the Mississippi is now flowing where New Madrid stood in 1811, and that the old grave-yard has traveled over from the State of Missouri into Kentucky. How this had happened, it was easy for me to divine when I went out after breakfast to look at the place by daylight.

The river bank is now about twenty-five feet high, and would be forty-five feet at the lowest water level. It is giving way rapidly, three houses having fallen in during the last week, and some proprietors are in the act of shifting their quarters half a mile inland. At the bottom of the wasting bank, there is a semi-fluid quick-sand, which greatly accelerates the process of destruction. Yesterday, the ruins of a house, with the wooden fence of a garden, were precipitated into the river, and some of the wreck has formed a talus, up which I saw some hogs, after several unsuccessful attempts, clamber at last into a garden, where they began to uproot the flowers. The steamboats, which are now sailing

close to the bank, will, in a few years, pass freely over the site of the humble mansion where we had been sleeping; and the geographer, in constructing a map half a century hence, may have to transfer to the State of Kentucky, the spot where I saw a garden flourish.

I examined the perpendicular face of the bank with some interest, as exemplifying the kind of deposits which the Mississippi throws down near its margin. They differ in no way from accumulations of sand and loam of high antiquity with which the geologist is familiar; some beds are made up of horizontal layers, in others they are slanting, or in what is called cross stratification. Some are white, others yellow, and here and there a seam of black carbonaceous matter, derived apparently from the destruction of older strata, is conspicuous.

I next set out on an excursion to examine those districts, where I heard that some superficial effects of the great earthquake of 1811 were still visible. The reader should be reminded that this convulsion occurred contemporaneously with one of the most fatal earthquakes of South America, when the towns of Guayra and Caraccas were laid in ruins. The shocks were also felt in South Carolina. Humboldt has remarked that the shocks of New Madrid are the only examples on record, of the ground having quaked almost incessantly for three months, at a point so far remote from any active volcano. The shocks were most violent in part of the region called the Little Prairie, to the southward of New Madrid, and they extended as far south as the river St. Francis, and, northward, as far as the mouth of the Ohio. Although the country was thinly settled, and most of the houses built of logs, the loss of life was considerable. From accounts published at the time, it appears that the graveyard of New Madrid was precipitated into the Mississippi, the banks of which gave way in many places, and the ground swelled up so that the current of the river flowed backward for a time, carrying several flat boats northward, against the stream. In various parts of the region above alluded to as having been convulsed, lakes twenty miles and upward in extent were formed, while others which pre-existed were drained.* Hundreds of

* Silliman's Journal, vol. xv. 1829.

chasms opened, and new islands appeared in the Mississippi and its tributaries. Flint, the geographer, who visited the country seven years after the event, says that, at the time of his visit, a district west of New Madrid still remained covered with water, and that the neighboring forest presented a scene of great confusion—many trees standing inclined in every direction, and others having their trunks and branches broken. He also saw hundreds of deep chasms remaining in the alluvial soil, which were produced, according to the inhabitants, by the bursting of the earth, which rose in great undulations, and discharged vast volumes of water, sand, and coaly matter, thrown up as high as the tops of the trees. As the shocks lasted throughout a period of three months, the country people remarked that, in given districts, there were certain prevailing directions in which these fissures opened, and they accordingly felled the tallest trees, making them fall at right angles to the direction of the chasms. By stationing themselves on these, they often escaped being swallowed up when the earth opened beneath them. Some of the shocks were perpendicular, while others, much more desolating, were horizontal, or moved along like great waves.

Before I left New Orleans, Mr. Bringier, the engineer, related to me that he was on horseback near New Madrid, in 1811, when some of the severest shocks were experienced, and that, as the waves advanced, he saw the trees bend down, and often, the instant afterward, when in the act of recovering their position, meet the boughs of other trees similarly inclined, so as to become interlocked, being prevented from righting themselves again. The transit of the wave through the woods was marked by the crashing noise of countless branches, first heard on one side and then on the other. At the same time powerful jets of water, mixed with sand, mud, and bituminous coaly shale, were cast up with such force, that both horse and rider might have perished, had the undulating ground happened to burst immediately beneath them. He also told me that circular cavities, called sink-holes, were formed where the principal fountains of mud and water were thrown up.

Hearing that some of these cavities still existed near the town,

I went to see one of them, three quarters of a mile to the westward. There I found a nearly circular hollow, ten yards wide, and five feet deep, with a smaller one near it, and I observed, scattered about the surrounding level ground, fragments of black bituminous shale, with much white sand. Within a distance of a few hundred yards, were five more of these "sand-bursts," or "sand-blows," as they are sometimes termed here, and, rather more than a mile farther west, near the house of Mr. Savors, my guide pointed out to me what he called "the sink-hole where the negro was drowned." It is a striking object, interrupting the regularity of a flat plain, the sides very steep, and twenty-eight feet deep from the top to the water's edge. The water now standing in the bottom is said to have been originally very deep, but has grown shallow by the washing in of sand, and the crumbling of the bank caused by the feet of cattle coming to drink. I was assured that many wagon loads of matter were cast up out of this hollow, and the quantity must have been considerable to account for the void; yet the pieces of lignite, and the quantity of sand now heaped on the level plain near its borders, would not suffice to fill one-tenth part of the cavity. Perhaps a part of the ejected substance may have been swallowed up again, and the rest may have been so mixed with water, as to have spread freely like a fluid over the soil.

My attention was next drawn to the bed of what was once a lake, called Eulalie; Mr. W. Hunter, the proprietor of the estate, accompanying me to the spot. The bottom, now dried up, is about 300 yards long, by 100 yards in width, and chiefly composed of clay, covered with trees, the whole of them less than thirty-four years old. They consist of cotton-wood (*Populus angulata*), willows, the honey locust, and other species. Some single cotton-wood trees have grown so fast as to be near two and a half feet in diameter, and had not my guide known their age accurately, I should have suspected their origin to have been prior to 1811. All the species on the bottom differ from those covering the surrounding higher ground, which is more elevated by twelve or fifteen feet. Here the hickory, the black and white oak, the gum, and other trees, many of them of ancient date, are

seen to flourish. On all sides, the ascent from the old bed of the lake to its boundary, is by a steep slope, on ascending which you reach a platform on a level with the top of the bank of the Mississippi, which is about a mile distant. Mr. Hunter informed me that Lake Eulalie was formerly filled with clear water, and abounded in fish, until it was suddenly drained by the earthquake. In the clayey bottom, I traced the course of two parallel fissures, by which the waters escaped. They are separated from each other by a distance of about eight yards, and are not yet entirely closed. Near their edges, much sand and coal shale lie scattered, which were thrown out of them when they first opened.

In regard to the origin of this black bituminous shale, so abundantly cast out of chasms in this region, it belongs to the alluvial formation, and is found, in digging wells, fifteen feet deep, or sometimes nearer the surface. It was probably drifted down at a former period by the current of the Mississippi, from the coal-fields farther north.

Having learned that still more striking monuments of the earthquake were to be seen in the territory farther to the westward of New Madrid, I endeavored, but in vain, to hire a horse. At length a merchant's widow kindly lent me a steed. To procure a guide was impossible, all hands being fully employed. I therefore set out alone through the forest, skirting the borders of a swamp called the Bayou St. John, where I observed a great many fallen trees, and others dead and leafless, but standing erect. After riding some miles, I found my way to a farm, the owner of which had witnessed the earthquake when a child. He described to me the camping out of the people in the night when the first shocks occurred, and how some were wounded by the falling of chimneys, and the bodies of others drawn out of the ruins. He confirmed the published statements of the inhabitants having availed themselves of fallen trees to avoid being engulfed in open fissures, and I afterward heard that this singular mode of escape had been adopted in distant places, between which there had been no communication, and that even children threw themselves on the felled trunks. My new acquaintance then

took me to see several fissures still open, which had been caused by the undulatory movement of the ground, some of them jagged, others even and straight. I traced two of them continuously for more than half a mile, and found that a few were parallel ; but, on the whole, they varied greatly in direction, some being ten and others forty-five degrees west of north. I might easily have mistaken them for artificial trenches, if my companion had not known them within his recollection to have been "as deep as wells." Sand and black shale were strewed along their edges. They were most of them from two to four feet wide, and five or six feet deep ; but the action of rains, frost, and occasional inundations, and above all the leaves of the forest blown into them every autumn in countless numbers, have done much to fill them up.

Continuing my ride, I came to the house and farm of Mr. Love, who had long resided in this district, and he took me to part of the forest, on the borders of what is called the "sunk country," where all the trees of a date prior to 1811, although standing erect and entire, are dead and leafless. They are chiefly oaks and walnuts, with trunks three or four feet in diameter, and many of them 200 years old. They are supposed to have been killed by the loosening of the roots during the repeated undulations which passed through the soil for three months in succession. The higher level plain, where these dead trees stand, terminates abruptly toward the Bayou St. John, and the sudden descent of eight or ten feet throughout an area four or five miles long, and fifty or sixty broad, was caused, my informant assured me, by the earthquake. At the lower level are seen cypresses and cotton-wood, and other trees which delight in wet ground, all newer than 1812. I was told that there are some places where the descent from the upper level to that of the sunk country is not less than twenty and even thirty feet. In part of this sunk ground I saw not only dead oaks and hickory still erect, but aged gum-trees also and cypresses (*Cupressus disticha*).

While I was riding with Mr. Love he stopped his horse, and asked me if I did not feel the shock of an earthquake. When my attention was called to it, I fancied I had perceived it, but was not sure. He said they were frequent, although he had not

felt one for the last fortnight. It was now three years since they had been seriously alarmed by any movement. We looked at our watches, and when we returned to the farm he inquired of the family if any thing had happened. They said they had felt a shock, and heard a sound like distant thunder, at twenty-five minutes past eleven o'clock, which agreed exactly with the time when my companion had felt the motion.

If the information I obtained from several quarters be correct, in regard to the country permanently submerged by the earthquake of 1811-12, the area must exceed in magnitude what was stated in former accounts. The "sunk country," I am told, extends along the course of the White Water and its tributaries for a distance of between seventy and eighty miles north and south, and thirty miles east and west. A trapper, who had been hunting on the Little River, told me, that large spaces there were obviously under water, owing to the great shake, because the dead trees were still standing. In the true hunter spirit, he regarded the awful catastrophe of 1811-12 as a blessing to the country, and expatiated with delight on the vast area turned into lake and marsh, and the active trade carried on ever since in the furs of wild animals. It had been the making of New Madrid, he affirmed, which would become a rival of St. Louis, and exported even now at least half as many peltries. There had been taken last year 50,000 racoon skins, and 25,000 musk-rats for making hats and caps; 12,000 mink for trimming dresses; 1000 bears and 1000 otters; 2500 wild cats, 40 panthers, and 100 wolves. Beavers there were none, or only five or six had been trapped. He had gone in his canoe, which carried his hut, his gun, and his baggage, over the whole sunk country, and described to me the villages or hummocks built in the swamps by the musk-rats, which he called "French settlements," a piece of impertinence in which the Anglo-Americans indulge toward the creoles of Louisiana. He told me that within the area of the sunk country in Arkansas, about eighty miles from New Madrid, is a space called Buffalo Island, containing about twenty-five square miles, where, two years ago (1844), a herd of buffaloes, 300 or 400 strong, was surprised, and six of them taken.

The sunk country is not confined to the region west of the Mississippi; for, on my way up the river, I learnt from Mr. Fletcher, a farmer, who had a wooding station in Tennessee, that several extensive forest tracts in that state were submerged during the shocks of 1811-12, and have ever since formed lakes and swamps, among which are those called Obion and Reelfoot. He had observed, in several of these, that trees which had been killed, and had stood for a long time partially submerged, had in many places rotted down to the water's edge. In some swamps caused by the earthquake, they had all decayed to within a few inches of the base of the trunk. It is therefore evident, that should the turbid waters of the Mississippi overflow that region, and deposit their sediment on such stumps, they would present to the geologist a precise counterpart of the buried stools of trees with their roots before described as occurring at the bottom of the bluff at Port Hudson.* Mr. Fletcher also told me, that he knew several fissures in Tennessee, formed in 1811-12, where the ground on one side of the rent remained higher by two feet than that on the other side.

I was informed at New Madrid that the Indians, before the year 1811, had a tradition of a great earthquake which had previously devastated this same region. Yet there is so wide an area of forest without sink-holes, or any great inequalities of surface, and without dead trees like those above alluded to, that we can not suppose any convulsion of equal magnitude to have occurred for many centuries previous to 1811.

Having explored the margin of the Great Prairie, and seen the sunk country several miles west of New Madrid, I returned by a different path through the woods, often losing my way, till I fell into the main road for the last six miles, which was cut straight through the forest, and was at this season singularly monotonous and dreary. It was furrowed with long, deep ruts, cut in black mud, and full of miry water. The sky was cloudy, and the plain as level as if it had never been disturbed by the slightest subterranean movement since it originated. The trees were, for the most part, leafless, and almost all of the same height,

* Ante, pp. 137-140.

with no evergreens below them, and no grass ; but, instead of it, a somber brown covering of damp and dead oak leaves, strewed evenly over the ground. At one point I saw the rotting trunks of several fallen trees, and near them an old oak, on the boughs of which, near the base, a group of five turkey-buzzards were perched, in perfect character with the rest of the scene. Twilight was coming on, and the woods were silent ; but, as I approached the river, the silence was agreeably broken by the varied and liquid notes of a mocking-bird, and, at the same time, one of the large woodpeckers, with its brilliant plumage, flew over my head, as if to remind me that at other seasons the solitude is cheered by the song and bright colors of birds, when the leaves of the trees unfold themselves, and the sun's heat would then be so intense, that a traveler would gladly retreat into the shades of the dense forest.

When I took back my horse to its owner in New Madrid, I received a pressing invitation to exchange our present homely quarters for her comfortable house. Some of the other principal merchants made us hospitable offers of the same kind, which were exceedingly tempting. We thought it right, however, to decline them all, as we might have hurt the feelings of our German host and his wife, who, in their anxiety to accommodate us, had purchased several additional household articles. Among these was a table-cloth, and, when I entered the house, I was amused at the occupations of my wife and her companion. The baker's lady had accepted the offer of her guest to hem the new table-cloth, in which task she was busily engaged ; while the settler in the backwoods, having discovered that my wife had brought from New Orleans a worked collar of the latest Parisian fashion, had asked leave to copy it, and was intent on cutting out the shape, thus qualifying herself to outdo all the "fashionists" of the sunk country.

A great spirit of equality was observable in the manners of the whites toward each other at New Madrid, yet with an absence of all vulgar familiarity. But what I saw and heard, convinced me that the condition of the negroes is least enviable in such out-of-the-way and half civilized districts, where there are many ad-

venturers, and uneducated settlers, who have little control over their passions, and who, when they oppress their slaves, are not checked by public opinion, as in more advanced communities. New comers of a higher tone of sentiment are compelled sometimes to witness cruelties which fill them with indignation, heightened by the necessity of being silent, and keeping on good terms with persons of whose conduct they disapprove. To the passing stranger, they can enlarge on this source of annoyance, and send him away grieving that so late as the year 1821, Missouri should have been added to the Union as a slave state, against the wishes of a respectable minority of its own inhabitants, and against the feeling of a majority of the more educated population of the north.

CHAPTER XXXIV.

Alluvial Formations of the Mississippi, ancient and modern.—Delta defined.—Great Extent of Wooded Swamps.—Deposits of pure Vegetable Matter.—Floors of Blue Clay with Cypress Roots.—Analogy to ancient Coal-measures.—Supposed “Epoch of existing Continents.”—Depth of Fresh-water Strata in Deltas.—Time required to bring down the Mud of the Mississippi.—New Experiments and Observations required.—Great Age of buried and living Cypress-trees.—Older and Newer Parts of Alluvial Plain.—Upraised Terraces of Natchez, &c., and the Ohio, the Monuments of an older Alluvial Formation.—Grand Oscillation of Level.—The ancient Valleys inhabited by Quadrupeds now extinct.—Land-shells not changed.—Probable Rate of Subsidence and Upheaval.—Relative Age of the ancient Alluvium of the Mississippi, and the Northern Drift.

BEFORE leaving the valley of the Mississippi, I shall take this opportunity to offer some general remarks on the modern delta and alluvial plain of the great river, and on those fresh-water deposits before described in the bluffs of Port Hudson, Natchez, Vicksburg, and Memphis, which I regard as the monuments of a more ancient alluvial formation, one of high antiquity, yet formed when the physical geography of the country already bore a great resemblance to that now existing, and when, moreover, the land and waters were inhabited by the same species of terrestrial, fluviatile, and lacustrine mollusca, which now inhabit this region, although the land quadrupeds were almost entirely different.

The delta of the Mississippi may be defined as that part of the great alluvial slope, which lies below, or to the south of the branching off of the highest arm, or that called the Atchafalaya. Above this point, which is the head of the delta, the Mississippi receives water from its various tributaries; below, it gives out again, through numerous arms or channels, the waters which it conveys to the sea. The delta, so defined, is about 14,000 square miles in area, and elevated from a few inches to ten feet above the level of the sea. The greater part of it protrudes into the Gulf of Mexico, beyond the general coast line. The level plain to the north, as far as Cape Girardeau, in Missouri, above

the junction of the Ohio, is of the same character, including, according to Mr. Forshey, an area of about 16,000 square miles, and is, therefore, larger than the delta. It is very variable in width from east to west, being near its northern extremity, or at the mouth of the Ohio, 50 miles wide, at Memphis 30, at the mouth of the White River 80, and contracting again further south, as at Grand Gulf, to 33 miles. The delta and alluvial plain rise by so gradual a slope from the sea as to attain at the junction of the Ohio (a distance of 800 miles by the river) an elevation of only 200 feet above the Gulf of Mexico.

First, in regard to the whole alluvial slope, whether above or below the present head of the delta, it will appear, from what has been already said, that sand is thrown down near the borders of the main river and its tributaries, and fine mud at more distant points. The larger portion, however, of the whole area consists of swamps, supporting a luxuriant growth of timber, interspersed with lakes, most of which are deserted river bends. These lakes are slowly filling up, and every swamp is gradually becoming shallower, the substances accumulated in them being, for the most part, of vegetable origin, unmixed with earthy matter. It is only on their exterior margins (except after a sudden subsidence, during an earthquake like that of 1811-12), that the waters of the Mississippi throw down sediment in the interior of any large swamp or lake, for the reeds, canes, and brushwood, through which the waters must first pass, cause them to flow slowly, and to part with all the matter previously held in mechanical suspension. Long before they reach the central parts of a morass or lake, they are well filtered, although still deeply stained by vegetable matter in a state of decomposition.

Over a large portion of the submerged areas of the great plain, trees are seen growing every where in the water. Into the deeper water, where no forest can grow, the trunks of trees are floated, and many of these sink, when water-logged, to the bottom, which is also raised by an annual deposit of leaves, and of peaty matter derived from decaying plants, of which there is an exuberant growth round the borders of every swamp. That the admixture of inorganic matter is very small, has been shown by the observ-

ations of Messrs. Dickeson and Brown, who state, "that when the woods are burning, after an unusually dry season, pits are found burnt into the ground as far as the fire can descend without coming into contact with water, and scarcely any residuum or earthy matter is left."* They also state that at the bottom of all the cypress swamps or brakes, there is found a peculiar layer of tenacious blue clay, which forms the foundation, or floor, on which the vegetable matter accumulates. We may conclude, therefore, that as the roots of the cypress penetrate far beneath the soil, and project horizontally far and wide, those of one tree interlacing with another, such root-bearing beds of argillaceous loam must be very analogous to what are called fire-clays, so well known to the geologist as occurring underneath almost every seam of coal in the ancient carboniferous rocks.†

Other points of analogy might also be indicated between the deposits, whether of organic or inorganic matter, now accumulating in the valley-plain and delta of the Mississippi, and those of the ancient carboniferous rocks. When, for example, depressions are suddenly caused, as in the "sunk country" before described, certain wooded areas being submerged, the lower parts of the erect trees become enveloped with sand and mud, the upper portions rotting away, as must have happened in the case of the celebrated fossil forest of Dixon-fold, in Lancashire, belonging to the ancient coal-measures.‡ In the modern alluvial plain, also, river-sand will be often thrown down, as the Mississippi shifts its course over spaces on which pure vegetable matter had been previously accumulating for hundreds or thousands of years, just as we find sandstone sometimes resting immediately upon the old coal-seams; and, if there be a long succession of downward movements, the thickness of strata, all formed in shallow water or in swamps, may be indefinitely great. Should the hilly country, moreover, be distant, pebbles will no more be seen in the modern

* Silliman's Journal, Second Series, vol. v. p. 17, January, 1848.

† In my former "Travels," I have alluded to the fire-stones with *Stigmara* (now acknowledged to be the root of *Sigillaria*), underlying the American coal-seams, as they do those of South Wales, 3000 miles distant. "Travels in North America," vol. i. p. 62.

‡ Proceedings of Geol. Society, 1839, p. 139.

sand strewed over the buried trees and layers of vegetable matter, than they usually are in the grits associated with the coal of ancient date. The phenomena, also, of the New Madrid earthquake, may help us to explain the vast geographical area over which, in the course of ages, dense fluviatile and lacustrine strata, with intercalated beds of vegetable origin, may be made to extend without any inroads of the sea. For the inland parts of any hydrographical basin may be augmented indefinitely in length and breadth, while the seaward portions continue unaltered, as the delta around New Orleans, and the low lands bordering the Gulf of Mexico, preserved their level unchanged, while parts of Missouri and Tennessee were lowered.

By duly appreciating the permanent geographical revolutions which would result from a succession of such earthquakes as that of 1811-12, in the territory of New Madrid, we shall be prevented from embracing the theory implied in the language of those who talk of "the epoch of existing continents." In treating of deltas, they are in the habit of assuming that the present mass of alluvial matter which has been thrown into the sea at the mouths of great rivers, began to be deposited in all the great hydrographical basins of the world at one and the same fixed period—namely, when the formation of the existing continents was completed; as if the relative levels of land and sea had, during that time, remained stationary, or had been affected to so inconsiderable an amount, as to be unimportant in their influence on the physical geography of each region, in comparison with the changes wrought by the rivers, in converting sea into land. But what we already know of the deltas of the Po, Indus, Ganges, and other rivers, leads to a very different conclusion. The boring of an artesian well at Calcutta, was carried to the depth of 481 feet, the greater part of the section being below the level of the sea, and yet all the beds pierced through were of fresh-water origin, without any intermixture of marine remains. At different depths, even as far down as 380 feet, lacustrine shells, and a stratum of decayed wood, with vegetable soil, which appears to have supported trees, was met with.* These appearances may

* See "Principles of Geology," Seventh Edition, 1847, p. 266.

readily be accounted for, by assuming that there was a gradual subsidence of the ground for ages, which was as constantly raised by the accession of fluviatile sediment, so as to prevent any incursion of the sea. Occasionally there were pauses in the downward movement, when trees grew on the soil, and vegetable matter of some thickness had time to accumulate.

Recent observations, by Morlat and others, have demonstrated that, since the time of the Romans, there has been a general subsidence of the coast at the head of the Adriatic, to the amount of five feet, which has not prevented the delta of the Po and other rivers from advancing on the sea, although it must have checked their progress. Of the much greater movements of elevation and depression which have taken place in the delta of the Indus, especially those wrought in the year 1819, I have elsewhere given an account.* It would, therefore, be perfectly consistent with analogy to find, in the neighborhood of New Orleans, ancient swamp formations, with the roots and stumps of erect trees, unmixed with marine remains, far below the level of the sea, as is the fact, if I can rely on the information given me in 1846.†

Finding it impossible to calculate the age of the delta, from the observed rate of the advance of the land on the Gulf in each century, I endeavored to approximate, by a different method, to a minimum of the time required for bringing down from the upper country that large quantity of earthy matter which is now deposited within the area of the delta. Dr. Riddell communicated to me, at New Orleans, the result of a series of experiments which he had made, to ascertain the proportion of sediment contained in the waters of the Mississippi. He concluded that the mean annual amount of solid matter was to the water as $\frac{1}{1245}$ in weight, or about $\frac{1}{3000}$ in volume.‡ Since that period, he has made another series of experiments, and his tables show that the quan-

* Principles, Seventh Edition, p. 437.

† See ante, p. 109.

‡ The calculations here given, were communicated to the British Association in a Lecture which I delivered at Southampton, in September, 1846. See "Athenæum Journal," Sept. 26, 1846, and "Report of British Association," 1846, p. 117.

tity of mud held in suspension, increases regularly with the increased height and velocity of the stream. On the whole, comparing the flood season with that of clearest water, his experiments, continued down to 1849, give an average annual quantity of solid matter somewhat less than his first estimate, but not varying materially from it. From these observations, and those of Dr. Carpenter and Mr. Forshey (an eminent engineer, to whom I have before alluded), on the average width, depth, and velocity of the Mississippi, the mean annual discharge of water and sediment was deduced. I then assumed 528 feet, or the tenth of a mile, as the probable thickness of the deposit of mud and sand in the delta; founding my conjecture chiefly on the depth of the Gulf of Mexico between the southern point of Florida and the Balize, which equals, on an average, 100 fathoms, and partly on some borings, 600 feet deep, in the delta near Lake Pontchartrain, north of New Orleans, in which the bottom of the alluvial matter is said not to have been reached. The area of the delta being about 13,600 square statute miles, and the quantity of solid matter annually brought down by the river 3,702,758,400 cubic feet, it must have taken 67,000 years for the formation of the whole; and if the alluvial matter of the plain above be 264 feet deep, or half that of the delta, it must have required 33,500 more years for its accumulation, even if its area be estimated as only equal to that of the delta, whereas it is in fact larger.

From information since received, I think it not improbable that the quantity of water may have been underrated in this estimate;* and, if so, a larger amount of sediment would have

* I allude chiefly to the observations and experiments, on the velocity of the Mississippi at various depths, made by Mr. W. H. Sidell, during a Government survey, communicated to me through the kindness of Mr. Ruggles, of New York, which, if correct, would lead to the inference that the average number of cubic feet of water discharged into the Gulf per second, is considerably greater than Mr. Forshey and Dr. Carpenter deduced from their observations on the velocity of the stream at different depths. If, as I understand, there exist documents in the hydrographer's office at Washington, which would afford more ample data for such calculations, the Government would confer a boon on the scientific world by publishing them without

been brought down from the interior in a given time, and consequently a deduction would have to be made from the number of centuries above stated on that account. But, on the other hand, if it could be shown, by more accurate experiments and calculations, that the quantity of water in the above computation was greatly deficient, say even one-third less than the real quantity, I do not imagine that any exaggeration has been made in the time supposed to have elapsed since the rivers began to transport their earthy ingredients to the alluvial plains of Louisiana. The delta is, after all, a mere fragmentary portion of a larger body of mud, the finer particles of which never settle down near the mouths of the Mississippi, but are carried far out into the Gulf, and there dispersed.

The description which I have given of the great distance to which the yellow and lighter streams of fresh water are seen extending, from the various mouths, in the flood-season, into the Gulf; and still more, the destruction of the banks and bars of mud and sand caused by the tide scouring out the channels when the river is low,* and the strength of the marine current, running ten miles an hour, and the stories of anchors and heavy ballast cast up by the breakers high and dry on the shifting shoals near the extremity of the delta, make me doubt whether

delay. Such experiments as Mr. Sidell's, which give the velocity at various depths and at different distances from the banks, are the more needed, because it seems doubtful whether any correct mathematical formulæ have as yet been furnished for calculating the mean rate at which so deep a river as the Mississippi flows, from observations made simply on its superficial velocity. I placed all the data given me by Messrs. Riddell, Forshey, and Carpenter, in the hands of my friend, Mr. George Rennie, F.R.S., to whom we are indebted for many valuable papers on the application of the science of hydraulics to rivers (see Report of British Association, vol. iii. p. 415, 1834), and, after examining them, he came to conclusions which did not vary materially from those which I had previously announced. Mr. James Nicol, Assistant Secretary of the Geological Society of London, before he had seen Mr. Sidell's experiments, had expressed to me his belief that the quantity of water carried to the Gulf by the Mississippi, must be greater than I had assumed from Mr. Forshey's calculations, judging from the amount usually assigned as the annual discharge of rivers having hydrographical basins smaller than that of the Mississippi.

* See ante, p. 121.

the larger part of that impalpable mud, which constitutes the bulk of the solid matter carried into the sea by the Mississippi, is not lost altogether, so far as the progress of the delta is concerned. So impalpable is the sediment, and so slowly does it sink, that a glass of water taken from the Mississippi, may remain motionless for three weeks, and yet all the earthy matter will not have reached the bottom. If particles so minute are carried by the current, setting for a great portion of the year from west to east, across the mouth of the river, into the Gulf Stream, and so into the Atlantic, they might easily travel to the banks of Newfoundland before sinking to the bottom; and some of them, which left the head waters of the Missouri in the 49th degree of north latitude, may, after having gone southward to the Gulf, and then northward to the Great Banks, have found no resting-place before they had wandered for a distance as far as from the pole to the equator, and returned to the very latitude from which they set out. Were it not for the peculiar manner in which the Mississippi forms long bars of sand, which frequently unite with some part of the coast, so as to dam out the sea and form lagoons, the deposition of sediment in the delta would be much less considerable. A lagoon, like Lake Pontchartrain, once formed, becomes a receptacle of the finest mud, poured into it by an arm of the great river during the flood season, and the space thus parted off from the Gulf by bars of sand, is protected from the action of the breakers and marine currents.

When I inquired what might be the depth of the fluviatile mud in the suburbs of New Orleans, I was told that, in making a railroad near Lake Pontchartrain, piles were driven down sixty feet into the soft mud or slush, and when a boring was made there, 600 feet deep, beds of gnathodon were found, but no marine shells.

The depth of the alluvium may vary in different parts of the great sloping plain; for certain areas, such as the "sunk country," for example, west of New Madrid, may have been repeatedly depressed, and have been always brought up again to the same superficial level, by the deposition of the river mud, or the growth of vegetable matter.

The age of stumps and erect trunks of the deciduous cypress, whether living or buried, retaining their natural position, at points near the present termination of the delta, ought to be carefully examined, as they might afford evidence of the minimum of time which can be allowed for the gain of land on the sea. Some single trunks in Louisiana are said to contain from 800 to 2000 rings of annual growth, and Dr. M. W. Dickeson and Mr. A. Brown state, that the cypress brakes or basins, which fill up gradually, give place at length to other timber; but before this happens, the buried cypress stumps often extend through a deposit of vegetable and sedimentary matter twenty-five feet thick. "Sections of such filled-up cypress basins, exposed by the changes in the position of the river, exhibit undisturbed, perfect, and erect stumps, in a series of every elevation with respect to each other, extending from high-water mark down to at least twenty-five feet below, measuring out a time when not less than ten fully-matured cypress growths must have succeeded each other, the average of whose age could not have been less than 400 years, thus making an aggregate of 4000 years since the first cypress tree vegetated in the basin.* There are also instances where prostrate trunks, of huge dimensions, are found imbedded in the clay, immediately over which are erect stumps of trees, numbering no less than 800 concentric layers."

Michaud, in his famous work on the forest trees of North America, mentions that stems of this deciduous cypress (*Taxodium distichum*) are met with in Florida, and in southern Louisiana, forty feet in circumference above the enlarged base, which is three or four times that size; but such individuals dwindle to nothing before the gigantic trunk near Santa Maria del Tule, in the province of Oaxaca, in Mexico, which was first mentioned by Exeter, who found its circumference to be 117·10 French feet. Zuccarini, has lately removed the doubts of De Candolle respecting this measurement, which was taken above the dilated base, for that was no less than 200 feet in circumference. In this stem there would be 5352 rings of annual growth, if one line a year was taken as the average growth, the deposit of wood

* Silliman's Journal, Second Series, vol. v. p. 17. January, 1848.

becoming always much smaller in trees of great age ; but Zuccarini, in his estimate, thinks it may be safer to assume 1·6 line as the average, which would even then give the age of 3512 years for this single tree.

The great number of crescent-shaped lakes to the westward of the Mississippi, which formerly constituted bends in its ancient channel, are also monuments of the antiquity of the great plain over which the river has been wandering. Darby, the geographer, observed that, in the steep banks of the Atchafalaya, there are alternations of the bluish clay of the Mississippi and of the red ocherous earth peculiar to Red River, proving that the waters of these two streams once occupied alternately considerable tracts below their present point of union.* Since their junction (an event, the date of which is unknown), the waters and sediment of the Red River and Mississippi have been thoroughly mixed up together, before any deposition of their mud takes place in the lower country. It is evident, therefore, that, when we are enabled, by geological observations such as those of Darby, to distinguish the older from the newer portions, even of the modern alluvial plain, we may obtain more aid in our chronological computations founded on rings of growth in buried trees ; for we may then add the years deduced from stumps buried in the modern parts of the delta, to those proved by the structure of trees included in mud of earlier date.

After considering the age and origin of the modern deposits of the Mississippi and its tributaries, we have still to carry back our thoughts to the era of the fresh-water strata seen in the bluffs which bound the great valley. These, in their southern termination, have evidently formed an ancient coast-line, beyond which the modern delta has been pushed forward into the sea. Let *a*, *b* (fig. 10) represent the alluvial plain of the Mississippi, bounded on its eastern side at Vicksburg, as before described, by the bluffs *d*, at the foot of which are seen the Eocene strata, *f*, the upper part of the bluff being composed of shelly loam, or loess, of fresh-water origin, *d*, *e* (No. 2).

At Memphis, Port Hudson, and many other places, loam of

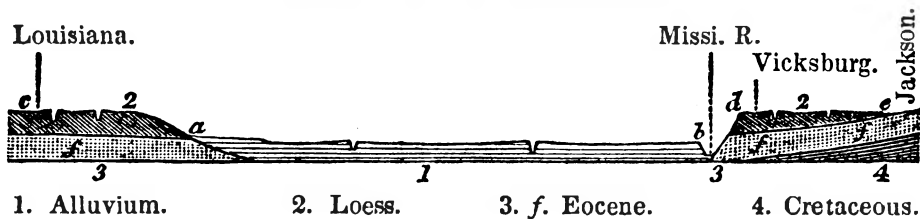
* Darby's Louisiana, p. 103.

the same age as No. 2, rising from 50 to 200 feet above the level of the sea, constitutes the entire bluffs, forming a table-land like that represented at *d*, *e*. Similar deposits, *a*, *c* (fig. 10), recur in Louisiana, on the western side of the great valley; but they are not, I am informed, denuded so as to present a steep bluff at *a*. They rest equally on Eocene strata, *f* (No. 3).

From what has been said of the species of shells contained in the loam, *d*, *e*, at Natchez, and in other localities, from the remains also of associated terrestrial animals, and from the buried trees of Port Hudson, we have inferred that these deposits (No. 2), are the monuments of an ancient alluvial plain, of an age long anterior to that through which the Mississippi now

Fig. 10.

VALLEY OF THE MISSISSIPPI.



flows, which was inhabited by land and fresh-water mollusca agreeing with those now existing, and by quadrupeds now for the most part extinct.

In my former "Travels in North America," I described some ancient terraces of gravel, sand, and loam, occurring every where in the valley of the Ohio, and gave a section of them as they are seen at Cincinnati.* I pointed out that the included fossil shells demonstrate the fluviatile and modern origin of the deposits, and suggested that their present position could only be explained by supposing, first, a gradual sinking down of the land after the original excavation of the valley, during which period the gravel and sand were thrown down, and then an upheaval of the same valley, when the river cut deep channels through the fresh-water beds.† Certain swamp formations observable in

* Travels in North America, fig. 9, vol. ii. p. 59, chap. xvii.

† The second terrace (*c*, fig. 9, *ibid.*) at Cincinnati, may imply a second oscillation.

the valleys of small tributaries of the Ohio, such as those of Big Bone Lick, in Kentucky, and Mill Creek, near Cincinnati, are of geological celebrity, in consequence of the great number of skeletons of extinct mammalia, such as the megalonyx, mastodon, elephant, and others, which seem to have lived, and have been mired in ancient morasses, before the land began to sink; for the great mass of fluviatile loam and gravel forming the terraces, has been superimposed on the black bog earth containing such bones. The teeth, however, and bones of similar extinct quadrupeds, especially the mastodon, are occasionally met with scattered through the incumbent gravel and loam, so that the same assemblage of quadrupeds continued to inhabit the valleys while the first change of level or the subsidence was going on. By simply extending to the valley of the Mississippi, the theory before applied to that of the Ohio, we may, as already stated at p. 142, in reference to the Port Hudson bluffs, account for the geological appearances seen in the larger and more southern area.

It has been long ascertained that in Norway and Sweden a gradual rise of the land above the sea has been going on for many centuries, producing an apparent fall in the waters of the adjoining ocean. The rate of elevation increases as we proceed northward from Gothenburg to the North Cape, the two extremities of this line being distant more than a thousand geographical miles from each other, and we know not how much farther north or south the motion may be prolonged under water. The rise of the land, which is more than five feet in a hundred years at the North Cape, gradually diminishes to a few inches in a century in the neighborhood of Stockholm, to the south of which the upward movement ceases; and in Scania, the southernmost part of Sweden, appears to give place to a slight movement in an opposite or downward direction.*

We also know that part of the west coast of Greenland, extending about 600 miles north and south, has been subsiding for three or four centuries, between latitudes 60° and 69° N.† But whether, in this instance, the rate of depression varies in different parts of the sinking area, has not yet been determined. In spec-

* Principles of Geology, 7th Ed. p. 506.

† See "Principles," *ibid*.

ulating, however, on the manner in which the valleys of the Mississippi and its tributaries may have been affected by subterranean movements, we are at least authorized by analogy to assume that the downward movement may have been greater in the more inland part of the continent, just as we have seen in 1811-12, that the "sunk country" west of New Madrid subsided, while the level of the delta at New Orleans underwent no sensible change. If, then, the vertical movement in the interior, in and near the valley of the Ohio, for example, were greater than near the Gulf, as, if, in the former case, it were two and a half feet in a century, and near the sea only half that amount, it would follow that the general fall of the rivers would be lessened. They would deposit all their heavier, and some even of their finer sediment, in their channels, instead of having power to carry it to the sea. They would fill up their beds, and often overflow the adjoining plains, raising their level by repeated layers of fluvatile matter or silt, frequently containing the shells of land and amphibious mollusks.

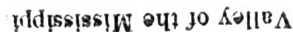
If, even now, the Mississippi, when flooded, dams up the mouths of its great tributaries, and transforms them for months into temporary lakes, it must have produced the same effect to a far greater extent if at any time the general fall of the country toward the sea was less rapid.

In narrow valleys bounded by ancient rocks 500 or 600 feet high, such as that of the Ohio, the alluvial formation could never acquire great breadth. Its thickness would depend entirely on the length of time throughout which the subsidence was prolonged. But nearer the sea, where the continent falls with a gentle slope toward the Gulf, the encroachment of the fresh-water deposits (No. 2, fig. 11, p. 196), of the great river on the tertiary strata (No. 3), constituting the original bluffs on its eastern and western boundaries, might be very great.

If we then suppose the downward movement to cease, and to be at length converted into an ascending one, the rate of upheaval being greatest in the more inland country, the fall of every river, and consequently its velocity, would begin immediately to augment. Their power of carrying earthy matter seaward, and

Valley of the Mississippi

Valley of the Mississippi



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of scouring out and deepening their channels, would be greater and greater, till at length, after a lapse of many thousand years, each of them would have eroded a deep channel or valley through the fluvial formation previously accumulated. The surface of what was once the river-plain at the period of greatest depression, would remain fringing the valley sides as a terrace, apparently flat, but in reality sloping down with the general inclination of the valley. Every where this terrace would present cliffs of gravel and sand facing the river.

After these changes, the fundamental strata (Nos. 3, 4, 5, fig. 11, p. 196) might be restored nearly to their ancient positions; the fresh-water beds (No. 2) having been raised, and having suffered great denudation.

It is not improbable that the same series of movements gave rise to the accumulation and present position of marine strata of comparatively modern date, forming the lower terrace near Darien in Georgia* which is indicated at 2*, in the annexed section (fig. 11). The reader will remember that the remains of the megatherium, mastodon, elephant, *Harlanus*, *equus*, and other extinct species of land quadrupeds, are there associated with marine shells, of species agreeing with those now inhabiting the Atlantic.

On the other hand, there are proofs in Texas of the prevalence of the same succession of subterranean movements far to the southwest, along the country bordering the Gulf of Mexico; for on the Brazos River there are beds of loam, or loess, examined by Dr. Dickeson, and, when at New Orleans, I saw the bones of extinct quadrupeds brought from that deposit. Among them was the jaw-bone of a tapir, apparently identical with the South American species; remains of the mastodon, elephant, ox, and other mammalia, much resembling, on the whole, those found at Natchez and on the Ohio.

As to the seaward extremity of the ancient delta, the effect of the gradual depression of land above assumed would be to cause its mud and sand to increase in thickness, instead of augmenting in area. When at length the movement was reversed, and the fresh-water deposits began to rise, the action of the sea would un-

* See ante, vol. i. p. 257.

dermine them, and, aided by the river and tides, sweep much of them away, and perhaps shape out a bay. But the swamp-mud, with innumerable interlaced roots of cypress and other trees, might offer considerable resistance; and, after a time, the river charged with sediment would throw down bars, and form a breakwater, to protect the newly upraised deposits from annihilation.

In regard to the time consumed in accomplishing the great oscillation of level which first depressed so large an area to the depth of 200 feet or more, and then restored it to its former position, it is impossible, in the present state of science, to form more than a conjecture as to the probable mean rate of movement. To suppose an average sinking and upheaval of two and a half feet in a century, might be sufficient, or would, perhaps, be too great, judging from the mean rate of change in Scandinavia, Greenland, the north of the Adriatic, and other regions. Even such an oscillation, if simultaneously continuous over the whole area, first in one direction, and then in another, and without any interruptions or minor oscillations, would require sixteen thousand years for its accomplishment. But the section at Cincinnati seems to imply two oscillations, and there would probably be pauses, and a stationary period, when the downward movement ceased, and was not yet changed into an upward one. Nor ought we to imagine that the whole space was always in motion at once.

When we have at length done our best to trace back the history of the more modern and more ancient alluvial formations of the Mississippi, the question still remains, what may be their age relatively to the great body of the drift containing erratic blocks in the northern latitudes of this same continent. The terraces of gravel and loam bordering the Ohio, and those on a larger scale, but of the same age, which constitute many of the eastern bluffs of the Mississippi, are evidently features of subordinate importance in the physical configuration of the continent. But to explain the origin of the northern drift of the Canadian lake district, and of the St. Lawrence, as I have endeavored to show in my former "Travels," requires a reference to such changes as would imply the submergence of a great part of the continent

drained by the head waters of the Mississippi, Missouri, and their northern tributaries.* For this and other reasons, into which I can not now enter, I presume that the great mass of the most elevated drift in the north, and the glacial grooving and polishing of the rocks, although they belong to a very modern era in the earth's history, were nevertheless anterior in date to the loam of Natchez and Vicksburg.

There exist in Canada, in the Niagara district, in New York, and other states north of the Ohio, lacustrine and swamp deposits of marl and bog-earth, including the bones of extinct quadrupeds, such as the mastodon, elephant, castoroides, and others, associated with land and fresh-water shells of recent species, which are decidedly post-glacial, and often found in hollows in the drift. These may be of contemporaneous date with the loam of Port Hudson and Natchez.

The northern drift, however, is by no means all of the same age, and as the period of glaciers and icebergs freighted with erratics is still going on, and has now a wide range in the temperate parts of the Atlantic, bordering the eastern shores of North America, so must we naturally suppose that certain parts of the drift, especially those found at lower levels, and near the sea, may not be more ancient than the loam of the western bluffs of the Mississippi.

* See vol. i. ch. ii. p. 47, and vol. ii. ch. xix. p. 99.



CHAPTER XXXV.

Departure from New Madrid.—Night-watch for Steamers.—Scenery of the Ohio River.—Mount Vernon, Ornithology.—No Undergrowth in Woods.—Spring Flowers.—Visit to Dr. Dale Owen, New Harmony.—Fossil Forest of erect Trees in Coal-measures.—Movers migrating Westward.—Voyage to Louisville.—Professional Zeal of one of “the Pork Aristocracy.”—Fossil Coral-reef at the Falls of the Ohio, Louisville.—Fossil Zoophytes as perfect as recent Stone-corals.

March 27, 1846.—WE took up our quarters in the wharf-boat at New Madrid in readiness to sail by the first steamer bound for the Ohio, for I wished to visit New Harmony in Indiana, and there was some risk of being detained several days. The first steamer we hailed, was bound for St. Louis, the next for the Cumberland river, Tennessee, and a third which might have taken us to Mount Vernon, in Indiana, where I meant to disembark, was unwilling to lose time by stopping, the captain shouting out that she was full of passengers, and heavily laden.

Before retiring to rest, I engaged with the keeper of the boat that he should appoint a good night-watch, and an hour after dark, I was awakened by the loud puffing and splashing of a steamer, evidently close at hand. Going on deck, I found the faithless black sentinel fast asleep. It was already too late to hail the vessel, but we made out that she was the *Nimrod*, and I afterward learnt, that in the course of her voyage she was snagged, both her chimneys thrown down, and her boiler pierced, so that we had a narrow escape. I now gave the keeper of the wharf-boat to understand that the whole town of New Madrid should be informed next day in what manner their night-watches were kept, which piqued him, and he then lighted a large fire on the bank ; but having no longer any faith in the sentinel, I could not sleep, so I determined to keep a look-out myself. Fortunately another steamer soon appeared ; and, almost before she was fairly alongside, a party of active negroes leapt upon our deck, each

snatching up an article of our luggage, while the clerk ushered us over the plank into a brilliantly lighted saloon. The change of scene to travelers who had been roughing it for several days under a humble roof, talking with trappers about the watery wilderness of the "sunk country," and who had just stepped out of a dark half-furnished wharf-boat, was more like the fiction of a fairy tale, than a real incident in an ordinary journey. Some musicians were playing at one end of the room, which was 150 feet long, and a gay young party from New Orleans were dancing a quadrille. At the other end we were delighted to see a table covered with newspapers, for we were nearly a week in arrear of news, and their columns were filled with the recent debates of the English House of Commons. There were also many articles reprinted from the best European periodicals, quarterly and monthly, besides those published in New England and New York. Nor were any of the advantages afforded by this floating palace more like an eastern tale of enchantment, than the thought, as we went to our berths, that before we rose next morning to breakfast we should be transported more than a hundred miles on our route northward against the current of a mighty river.

March 29.—Passed Cairo in the night, and next morning were at Smithland on the Ohio, at the mouth of the Cumberland River, having Kentucky on our right hand, and Illinois on the left. Limestone cliffs, bounding the valley, were a welcome sight, after the eye had been dwelling for so many weeks on flat and level regions. Although we had not yet ascended the river to a height of much more than 200 feet above the level of the sea, the climate had changed, and we were told that snow had fallen the day before. We observed that the red-bud, or Judas-tree, was not yet in flower.

On reaching the mouth of the Wabash River, which divides Illinois from Indiana, I learnt that when the ice breaks up there in the spring, it is often packed into such masses that, before melting, they float down with gravel frozen on to them as far as New Madrid. This fact may explain the coarseness of the materials observable in the shoals of the Mississippi, at low water, near Natchez, and still farther down; and may perhaps throw light

on some large boulders, of a former period, in the ancient gravel below the shelly loam of Natchez.

At Mount Vernon we landed, and I collected there many fossil shells, of fresh-water and land species, from a terrace of yellow loam, elevated many yards above high-water mark, on the Ohio. Returning from my excursion, I fell in with a naturalist of the place, armed with a rifle, and carrying some wild birds which he had shot. He was a shoemaker by trade, and had a collection of more than 150 well-stuffed birds from the neighborhood. He told me that the notes I heard here in the woods were chiefly those of the red-bird, but that some of the most musical were the song of a brown thrush, called, in Indiana, the mocking bird, but differing from the real musician of that name, which, though abounding at New Madrid, does not range so far north as the Ohio. Conversing with him, I learnt that the loud tapping of the large red-headed woodpecker, so common a sound in the American forests, is not produced, as I had imagined, by the action of the beak perforating the bark or wood, but is merely a succession of sharp blows on the trunk of the tree, after which the bird is seen to listen attentively, to know if there are any insects within. Should they stir in their alarm, and betray the fact of their being "at home," the woodpecker begins immediately to excavate a hole in the rotten timber.

I had promised to pay a visit to Dr. David Dale Owen, the state geologist of Indiana, and hired a carriage which conveyed us to New Harmony, situated on the Wabash River sixty miles above its junction with the Ohio. On our way across the country, we went through a continuous forest, consisting chiefly of oak, beech, and poplar, without any undergrowth, and in this respect differing remarkably from the wooded valleys and hills of the Alleghanies, and the region eastward of those mountains, as well as all parts of New England. Here there were no kalmias or azaleas, or sweet fern, or candleberry, or other evergreens. The green carpet beneath the trees was made up largely of mosses, and among them was that beautiful European species of feather-moss, *Hypnum proliferum*, in great plenty. The trunks of many trees were spotted by a jet-black fungus resem-

bling a lichen. Below the branches we were pleased to gather several spring flowers, the white anemone, the blood-root (*Sanguinaria canadensis*), the dog-tooth violet (*Erythronium americanum*), and the spring-beauty (*Claytonia virginica*).

Though a large proportion of the mosses and other cryptogamia are identical with those of Europe, we saw no flower which was not peculiar to America. Many European plants, however, are making their way here, such as the wild camomile, and the thorn-apple (*Datura Stramonium*); and it is a curious fact, which I afterward learnt from Dr. Dale Owen, that when such foreigners are first naturalized they overrun the country with amazing rapidity, and are quite a nuisance. But they soon grow scarce, and after eight or ten years can hardly be met with.

We spent several days very agreeably at New Harmony, where we were most hospitably welcomed by Dr. and Mrs. Dale Owen. The town is pleasantly situated in a valley watered by the Wabash, which here divides the states of Indiana and Illinois. Some large buildings, in the German style of architecture, stand conspicuous, and were erected by Rapp; but the communities founded by him, and afterward by Robert Owen of Lanark, have disappeared, the principal edifice being now appropriated as a public museum, in which I found a good collection of geological specimens, both fossils and minerals, made during the state survey, and was glad to learn that the Legislature, with a view of encouraging science, has exempted this building from taxes. Lectures on chemistry and geology are given here in the winter. Many families of superior intelligence, English, Swiss, and German, have settled in the place, and there is a marked simplicity in their manner of living which reminded us of Germany. They are very sociable, and there were many private parties where there was music and dancing, and a public assembly once a week, to one of which we went, where quadrilles and waltzes were danced, the band consisting of amateur musicians.

Say, the eminent conchologist, who died at the age of forty-five, formerly resided at New Harmony; and recently Prince Maximilian, of Neuwied, and the naturalists who accompanied him, passed a winter here. We found also, among the residents,

a brother of Mr. Maclure, the geologist, who placed his excellent library and carriage at our disposal. He lends his books freely among the citizens, and they are much read. We were glad to hear many recent publications, some even of the most expensively illustrated works, discussed and criticised in society here. We were also charmed to meet with many children happy and merry, yet perfectly obedient; and once more to see what, after the experience of the last two or three months, struck us as a singular phenomenon in the New World, *a shy child!*

I made some geological excursions with Dr. Owen and his friend, Mr. Bolton, to see the "carboniferous rocks," of which this region is constituted, and the shelly loam, like that of Natchez, which has evidently once filled up to a considerable height the valley of the Wabash, and through which the running waters have re-excavated the present valley.

There is no church or place of public worship in New Harmony, a peculiarity which we never remarked in any town of half the size in the course of our tour in the United States. Being here on week-days only, I had no opportunity of observing whether on Sundays there are any meetings for social worship. I heard that when the people of Evansville once reproached the citizens of this place for having no churches, they observed that they had also no shops for the sale of spirituous liquors, which is still a characteristic of New Harmony; whereas Evansville, like most of the neighboring towns of Indiana, abounds in such incentives to intemperance.

April 3.—Left New Harmony for Evansville, on the Ohio, Mr. Maclure having kindly lent us his carriage and horses. We were accompanied by Dr. Dale Owen and Mr. Bolton. On the way, we visited Kimball's mill, in the township of Robinson, in Poser County, fourteen miles northwest of Evansville, where a fine example is seen of upright fossil trees belonging to a species of *Sigillaria*. These are imbedded in strata of argillaceous shale, or hardened mud, which constitute the upper part of the great Illinois coal-field, and above them lies a horizontal layer of sandstone, while a seam of coal, eighteen inches thick, is observed about eighteen feet below the roots. Having borrowed spades

from the neighboring mill, we dug out the earth from round one of the buried trees, and exposed a trunk four feet eight inches high, from the bottom of which the roots were seen spreading out as in their natural position. There were two other fossil trees near it, both apparently belonging to the same species of *Sigillaria*. The bark, converted into coal, displayed the scars left by the attachment of the leaves, but no internal structure was preserved in the mud, now forming a cylindrical mass within the bark. The diameter of the three trunks was from 18 inches to two feet, and their roots were interlaced. A great number of others, found in like manner in an erect posture, have been removed in working the same quarry. The fossil plants obtained here and in other parts of the Indiana coal-field, are singularly like those in other carboniferous strata in Ohio, Pennsylvania, Nova Scotia, and Europe. Among them occur species of ferns of the genera *Pecopteris* and *Cyclopteris*, and three plants, *Neuropteris flexuosa*, *N. cordata*, and *Lepidodendron obovatum*, all European species, and common to the Alleghanies and Nova Scotia.

The three large fossil trees above described as newly exposed to view, were standing erect under the spreading roots of one living oak, and it is wonderful to reflect on the myriads of ages which have intervened between the period when the ancient plants last saw the light, and the era of this modern forest, the vegetation of which would scarcely afford, except in the case of the ferns, any generic resemblance, yet where the trees are similar in stature, upright attitude, and the general form of their roots.

As we approached Evansville, we passed a German farm, where horses were employed to tread out the maize, and another where vines were cultivated on the side of a hill. At one turn of the road, in the midst of the wood, we met a man with a rifle, carrying in his hand an empty pail for giving water to his horse, and followed at a short distance by his wife, leading a steed, on which was a small sack. "It probably contains," said our companions, "all their worldly goods; they are movers, and have their faces turned westward, a small detachment of that great army of emigrants, which is steadily moving on every year toward the Rocky Mountains. This young married couple may perhaps

go down to the Mississippi, and buy, for a few dollars, some acres of land, near a wooding station. The husband will fell timber, run up a log cabin, and receive ready money from the steamboats, which burn the wood. At the end of ten or fifteen years, by which time some of their children will have become profitable servants, they may have put by 2000 dollars, bought a farm, and be living in a frame-house."

The very moment of our arrival at Evansville, a fine steamboat, the *Sultana*, came in sight, and we found, among the passengers, some agreeable acquaintances, whom we had known at New Orleans and Natchez.

As some of these large vessels are much more expensive than others, Americans of the richer class, when making a long voyage, choose them purposely, as in England we take places in a first-class railway carriage, that they may be less thrown into contact with ruder travelers. One of our friends, a naval officer, speaking of the improvement of society in the western states, said that dueling and drinking had greatly diminished in the last fifteen years. He related one of the strange scenes he had witnessed at a dinner-party, only a few years ago, at the house of a judge, in a town on the banks of the Mississippi. A quarrel had arisen, when one of the guests took out a pen-knife, and stabbed the judge in the side, so that the blood spirted out. The judge himself immediately drew out a bowie knife, and his antagonist, at the same instant, a pistol, and it then appeared that every other individual was armed with knives or pistols. The narrator admitted, that as he was traveling, he had also pistols upon him. Fortunately some cool, judicious persons of the party interposed in time to prevent farther mischief.

I fell into conversation with an intelligent well-dressed passenger, who, as we sailed by the town of Utica, in Indiana, remarked that it was too near the large city of Louisville to thrive greatly; and in speculating on the future prospects of the west, he said that by the census of 1840, it was proved that the Atlantic states had about nine and a half millions of inhabitants, while the states lying west of the mountains, and between the great lakes and the Gulf of Mexico, numbered about six millions

four hundred thousand. Now it is believed that the census of 1850 will show the population of the whole country to have changed its center to the west of the mountains, and under a system of universal suffrage, the center of population becomes the center of political power. After having been much interested with the information which I gained from this companion, although occasionally struck with his violation of the rules of ordinary good manners, I was trying to divine to what class in society he might belong, when he began to enlarge on the number of hogs killed last year in Cincinnati, which exceeded all former seasons, amounting to 300,000, and to describe to me how the streets, in killing time, were blocked up with barrels of salt pork for exportation, so that it was not easy to pass in a carriage. He then asked me abruptly, "How many hogs do you think I killed last season?" Imagining that he might be a farmer, I said, 300. He exclaimed, "18,000, and all of them dispatched in thirty-five days!" He next began to boast that one of his men could eviscerate more hogs in one day than any other hand in Kentucky; and, placing himself in the attitude of his favorite executioner, he gave me such a minute description of his mode of operating, and dwelt on it with so much zest, as to make me feel satisfied that, as Thomas Diafoirus, in the "Malade Imaginaire," proposed to treat his mistress with "a dissection," so this member of the "pork aristocracy" of the west, would never doubt that such feats of professional dexterity as he loved to dilate upon, must command the admiration of all men who have the slightest feeling for superior artistical skill.

The distance from Evansville to Louisville was 205 miles, and on both sides of the river were hills of limestone or sandstone, of the coal formation, 300 feet high, frequently presenting steep and picturesque cliffs. Every where I observed a flat terrace of loam, or loess, bordering the river, sometimes on the side of Kentucky, sometimes on that of Indiana.

I had found this ledge, both at Mount Vernon and at Evansville, to contain land and fresh-water shells. At the last-mentioned town, where the terrace was from twenty to thirty feet high, one of the lower beds of coarse materials was full of *Paludine*

and the valves of a *Unio*, both of living species ; yet with them were included in the same gravelly and shelly mass, the well-preserved bones of the megalonyx.

The coal-measures had given place to an older series of strata, the Devonian, when we reached the Falls of the Ohio, at Louisville, where we saw the river foaming over its rocky bed. I first landed at New Albany, in Indiana, nearly opposite Louisville, that I might visit Dr. Clapp, and see his splendid collection of fossil corals. He accompanied me to the bed of the river, where, although the water was not at its lowest, I saw a grand display of what may be termed an ancient coral reef, formed by zoophytes, which flourished in a sea of earlier date than the carboniferous period. The ledges of horizontal limestone, over which the water flows, belong to the old red sandstone, or Devonian group, and the softer parts of the stone have decomposed and wasted away, so that the harder calcareous corals stand out in relief. Many branches of these zoophytes project from their erect stems precisely as if they were living. Among other species I observed large masses, not less than five feet in diameter, of *Favosites gothlandica*, with its beautiful honeycomb structure well displayed, and, by the side of it, the *Favistella*, combining a similar honeycombed form with the star of the *Astræa*. There was also the cup-shaped *Cyathophyllum*, and the delicate network of the *Fenestella*, and that elegant and well-known European species of fossil, called "the chain coral," *Catenipora escharoides*, with a profusion of others, which it would be tedious to all but the geologist to enumerate. These coralline forms were mingled with the joints, stems, and occasionally the heads, of lily encrinites. Although hundreds of fine specimens have been detached from these rocks, to enrich the museums of Europe and America, another crop is constantly working its way out, under the action of the stream, and of the sun and rain, in the warm season when the channel is laid dry. The waters are now twenty feet above their lowest, and more than forty feet below their highest level, so that large spaces of bare rock are exposed to view.

On one of the window-sills of Dr. Clapp's library was displayed

a group of these ancient corals, and, in the other window, a set of recent corals from the West Indian seas, of the genera *Meandrina*, *Astrea*, *Madrepora*, and others ; some of them as heavy and stony as those of older date, their pores, foramina, and minute microscopic structure, not being more distinctly preserved. No one but a zoologist would have been able to guess which set were of modern, and which of ancient origin. Yet so old are the fossils, that they are referable to an era antecedent to the Alleghanies, the Alps, and the Pyrenees, nay, even to the time when by far the greater part of the materials composing these mountain-chains were slowly elaborated beneath the ocean.

CHAPTER XXXVI.

Louisville.—Noble Site for a Commercial City.—Geology.—Medical Students.—Academical Rotation in Office.—Episcopal Church.—Preaching against the Reformation.—Service in Black Methodist Church.—Improved Condition of Negroes in Kentucky.—A colored Slave married as a free White.—Voyage to Cincinnati.—Naturalized English Artisan gambling.—Sources of Anti-British Antipathies.—Progress of Cincinnati.—Increase of German Settlers.—Democracy of Romanists.—Geology of Mill Creek.—Land Tortoises.—Observatory.—Cultivation of the Vine.—Sculpture by Hiram Powers.

April 5, 1846.—FROM New Albany we crossed the river to Louisville, the metropolis of Kentucky, and found the Galt House the best hotel we had been in since we left the St. Louis at New Orleans. On our way through the streets, we saw written in large letters, over a smith's shop, the word "black-smithy," and another inscription ran thus:—"Cash paid for coon, mink, wild-cat, beaver, musk-rat, otter, bear, wolf, and deer-skins;" which reminded us that this city, being the first place where large vessels coming up the river are stopped by the Falls, is the natural emporium for the produce of the western hunting grounds. A more noble site for a great commercial town can not be imagined; and several merchants expressed to me their opinion, that Cincinnati, founded at a later date, would not have outstripped her rival in the race, so as to number now a population of nearly 100,000 souls, more than double that of Louisville, but for the existence of slavery, and a large negro population in Kentucky. Besides the disadvantages always arising from the partition of a country between two races, evils which emancipation can not put an end to, Kentucky suffers from the decided preference shown to the right bank of the river by the best class of new settlers from the northeastern states, who choose the free state of Ohio for their residence, instead of the slave state on the left bank.

I made a geological excursion with Dr. Yandell, one of the Professors of the University of this place, into the neighborhood, going to the summit of a hill called Button-Mould Knob, so named from the joints of encrinites with which the lower strata of the carboniferous formation are charged. Here we enjoyed a wide prospect of the surrounding country, which, if all the valleys were filled up, would form an even table-land, the nearly horizontal strata having been evidently planed off at a certain level by the denuding action of the sea. The valley of the Ohio forms the principal break in a region otherwise void of any striking feature in its natural scenery. A few spring flowers only were to be seen, the most plentiful being the *Houstonia* and the *Claytonia*.

We went to an evening party at the house of one of the Professors of the University, and met many of his colleagues, and some medical students. Two of the latter informed me, that they had been sent to London to finish their course of study, having been brought up to feel great respect and veneration for English educational establishments. They had been received kindly and politely by the professors, but the prejudices of the majority of their fellow pupils against the institutions of the United States, and still more their rude remarks about the vulgarity of all Americans (of whom they knew scarcely any thing), had so wounded their national feelings, that they had written home to entreat their parents to allow them to attend classes at Paris, or in some German University, to which they had reluctantly assented. These young men, being of good families in Kentucky, were gentlemanlike in their manners, in this respect decidedly above the average standard of students of the same profession in England, and they spoke with no bitterness even on this annoying topic. Talking over academical matters, some elders of the company complained of the wish of the democratic party to apply their favorite dogma of "rotation in office," or, "let every man have his turn," not only to members of the executive and the election of judges, but actually to University professors. "You may amuse your countrymen," said they, "on your return, by telling them of the wisdom of our sovereign rulers,

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who would shorten to a minimum the term of service even of men who fill literary or scientific chairs." I informed them that nearly the whole University lectures at Oxford and Cambridge, had of late years, in opposition to earlier usage, been transferred to temporary occupants of tutorships, who looked forward to the resigning of their academical functions as soon as they could afford to marry, or could obtain church preferment ; so that the extreme democracy of Kentucky would at least have no claim to originality, should they apply their maxim of rotation in office to a body of academical lecturers.

On Sunday we attended service in an Episcopal church. The young preacher dwelt largely on the supreme authority of the Church, and lamented that many dogmas and pious usages, which had received the unbroken sanction of fifteen centuries, should have been presumptuously set at naught by the rebellious spirit of the sixteenth century, the great intellectual movement of which he described as marked by two characteristics, "non-sense and philosophy;" nor was it easy to discover which of these two influences, in their reference to matters ecclesiastical, were most evil in his sight. After a long dissertation in this strain, he called up to him a number of intelligent looking young girls to be catechized, and I never saw a set of children with more agreeable or animated countenances, or who displayed more of that modest reverence and entire, unreflecting trust in their teacher, which it is so pleasing to see in young pupils. That some of the questions should have reference to the doctrines just laid down in the preceding discourse was to be expected. One of the last interrogatories, "Who wrote the Prayer-book?" puzzled the whole class. After waiting in vain for an answer, the minister exclaimed, "Your mother;" and made a short pause, during which I saw the girls exchange quick glances, and I found time to imagine that each might be exclaiming mentally to herself, "Can he mean my mother?" when he added, in a solemn and emphatic tone, "Your mother, the Church!" Had his congregation belonged to any other than the Anglican Church, I might simply have felt regret and melancholy at much that I had witnessed ; as it was, I came out of the church in a state of

no small indignation. I had heard, in the course of my travels, several discourses equally at variance with the spirit of the Reformation, but none before in which the Reformation itself was so openly denounced, and I could not help reflecting on the worldly wisdom of those who, wishing in the middle of the nineteenth century, to unprotestantize the members of a reformed church, begin their work at an age when the mind is yet unformed and plastic—dealing with the interior of the skull as certain Indian mothers dealt with its exterior, when they bound it between flat boards, and caused it to grow, not as nature intended, but into a shape which suited the fashion of their tribe.

In the evening we were taken, at our request, to a black Methodist church, where our party were the only whites in a congregation of about 400. There was nothing offensive in the atmosphere of the place, and I learned, with pleasure, that this commodious building was erected and lighted with gas by the blacks themselves, aided by subscriptions from many whites of different sects. The preacher was a full black, spoke good English, and quoted Scripture well. Occasionally he laid down some mysterious and metaphysical points of doctrine with a dogmatic air, and with a vehement confidence, which seemed to increase in proportion as the subjects transcended the human understanding, at which moments he occasionally elicited from his sympathizing hearers, especially from some of the women, exclamations such as “That is true,” and other signs of assent, but no loud cries and sobs, such as I had heard in a white Methodist church in Montgomery, Alabama. It appeared from his explanation of “Whose superscription is this?” that he supposed the piece of money to be a dollar note, to which Cæsar had put his signature. He spoke of our ancestors in the garden of Eden in a manner that left no doubt of his agreeing with Dr. Prichard, that we all came from one pair—a theory to which, for my own part, I could never see any ethnological or physiological objection, provided time enough be allowed for the slow growth of races; though I once heard Mr. A. W. Schlegel, at Bonn, pronounce it to be a heresy, especially in an Englishman who had read the “Paradise Lost.” “I could have pardoned Prichard,” said the

Professor, "for believing that Adam was the forefather of all the Africans, had he only conceded that 'the fairest of her daughters, Eve,' never could have been a negress."

Toward the close of the discourse, the minister said "that a protracted meeting would soon be held; but such assemblies were, in his judgment, becoming too frequent." He also announced that on Easter Sunday there would be a love-feast, which no doubt would be very crowded, "and where I hope you will all enjoy yourselves." He then said, "Sirs and Madams, I have now to warn you of a serious matter, but I see many of you are nodding, and let every one wake up his neighbor. The sexton, poor man, has more than he can do." This official, by the way, had been administering with his cane many admonitory taps on the heads of the younger part of the congregation, such as must have precluded them from napping for some time, if their skulls are not harder than those of their white brethren. There was a general stir, and two fat negro women, between whom my wife was wedged in (for the two sexes sat on separate sides), looked to see if she was awake. "There is a storm brewing," said the preacher, "owing to some late doings in Ohio, and I hope that none of the membership will get themselves into a scrape." The exciting topic on which he then enlarged was the late seizure, or kidnaping, as it was termed, of Jerry Phinney, who, after residing some years in Ohio, had been reclaimed by the heirs of his owners, in consequence of some flaw in his letters of freedom, and brought back to Kentucky. An attempt at a rescue was for a time apprehended, but 500 dollars were soon raised and paid to secure his release.

When I commended the action of the black preacher as graceful, I was assured that he had successfully imitated an eminent American player who had lately performed at Louisville. "These blacks," said my informant, "are such inimitable mimics, that they will sometimes go through a whole sermon in the same style as they have heard delivered by a white man, only appearing somewhat to caricature it, because they are more pompous and declamatory; which in them is quite natural, for they are a more demonstrative race than we are. If he addresses them in

a plain, colloquial manner, his sermon would seem tame, and make no impression. They can not talk about the price of a pair of shoes, or quid of tobacco, without such gesticulations that you would fancy it was a matter of life and death they were discussing." There was a second colored man in the pulpit, who delivered a prayer with a strong nasal twang, and very extravagant action. The hymns were some of them in rather a wild strain, but, on the whole, not unmusical.

I learnt that the domestic servants of Louisville, who are chiefly of negro race, belong very commonly to a different church from their owners. During our short stay here, an instance came to my knowledge of a master who, having an untractable black servant, appealed to a negro minister, not of his own church, to interfere and reprove him for his bad conduct, a measure which completely succeeded. We were told of four Sunday schools for colored people in the city, and in one of them 170 children receive instruction. There are also other schools on week days for teaching negroes to read, both in Kentucky and Tennessee. When I communicated these facts to Americans in Philadelphia, they were inclined to be incredulous, and then said, "If such be the condition of negroes in Kentucky, they must be better off in slave states than in others called free; but you must not forget that their most worthless runaways take refuge with us."

A recent occurrence in Louisville places in a strong light the unnatural relation in which the two races now stand to each other. One of the citizens, a respectable tradesman, became attached to a young seamstress, who had been working at his mother's house, and married her, in the full belief that she was a white, and a free woman. He had lived happily with her for some time, when it was discovered that she was a negress and a slave, who had never been legally emancipated, so that the marriage was void in law. Morally speaking, it was certainly not void; yet a separation was thought so much a matter of course, that I heard the young man's generosity commended because he had purchased her freedom after the discovery, and given her the means of setting up as a dressmaker. No doubt the lady knew that she was not of pure blood, and we were told that only six

years before she had run away from her owner. She had also concealed this fact from her lover, but at a time, probably, when her affections were deeply engaged. On the other hand, we may pity the husband who suddenly finds that he is disgraced by having made an unlawful marriage, that his children are illegitimate, and that the wife of his choice belongs to an inferior caste in society. This incident is important in many points of view, and especially as proving to what an extent the amalgamation of the two races would take place, if it were not checked by artificial prejudices and the most jealous and severe enactments of law. I found that many here believe and hope that the time of emancipation is near at hand; but I was sorry to discover that the most sagacious seemed to think that the blacks in these middle states will not be able to stand alone when no longer protected by enjoying the monopoly of the labor market.

April 7.—Sailed in the Ben Franklin steamer from Louisville to Cincinnati, a distance by the river of 130 miles. The scenery much resembled that below the Falls; the valley of the Ohio being bounded by flat-topped hills, 200 or 300 feet high, formed of horizontal beds of sandstone or limestone, with steep slopes or cliffs toward the river, and at the base of these a flat terrace of gravel or loam on one or both sides of the Ohio, above high-water mark.

We made twelve miles an hour against the stream, and if we were descending, the captain says, we should go at the rate of eighteen miles an hour. Among the passengers I saw a thin, sallow-faced, anxious looking artisan, whom I mistook for a native-born Yankee, holding forth to a small circle of idlers about "*our* revolution" and "*our* glorious victories over the British," and calling upon all to prove themselves "true Democrats." Soon after we started I saw him take a dram, and then sitting down to cards lose sixty dollars in half an hour. The officers of the ship, observing this transaction, interfered, and put a stop to the game, giving orders to the steward not to sell any more brandy to this passenger. I afterward learnt that he was an Englishman, a skillful, first-rate mechanic in the iron trade at Pittsburg, who had come out from Liverpool about sixteen years ago. After drinking and losing all his earnings at the gaming

table, he has returned again and again to work, and can always command high wages. He has read up the history of the American revolution, and at an election can harangue a mob of newly come emigrants with great effect, and with all the authority of a native, assuming a tone of intense nationality. On other occasions I had met with a naturalized Englishman of a different stamp, who might equally be described as "*ipsis Americanis Americanior*," one who, having been born in the middle classes, has gone over early in life to the New World, where he has succeeded in business, risen to a good social position, and given his children an excellent education. He then goes back to visit the "old country," and see his friends and relatives, and is surprised and mortified that they are separated by so great a gulf from the higher classes, greater than exists between the humblest and most elevated in his adopted country. He finds, also, the religious sect to which he and his kindred belong, only tolerated, and not standing on the same footing of "gentility" as the dominant church. His sectarian zeal, his feelings of social pride, and his political principles are all up in arms, and he comes back to America far more patriotic and more of an optimist than any native. If he then ventures to enter on the political arena, his opponents warn the electors against one who is an alien by birth and feeling, and, in his efforts to disprove such imputations, he reaches the climax of anti-British antipathy.

Such citizens were unaffectedly incapable of comprehending that I could have seen so much of the Union, and yet have no wish whatever to live there. Instead of asking, "Would you not like to settle here?" it would be more prudent for them to shape their question thus: "If you were to be born over again, and take your chance, by lot, as to your station in society, what country would you prefer?" Before choosing, I should then have to consider, that the chances are many thousands to one in favor of my belonging to the laboring class, and the land where they are best off, morally, physically, and intellectually, and where they are most progressive, would be the safest one to select. Such being the proposition, the Free States of the Union might well claim a preference.

Every town we had visited in the last three months, since we left Savannah, in January, was new to us, and Cincinnati was the first place where we were able to compare the present state of things with that observed by us in the summer of 1842. In this short interval of four years, great improvements in the buildings, streets, and shops were visible; a vast increase of population, and many additional churches, and new cotton factories. The soil of the country immediately behind the town is rich, and there is an ample supply of laborers, partly indeed because the Catholic priests strive to retain in the city all the German emigrants. Although they are industrious and thrifty, such an arrangement is by no means the best for promoting the progress of Ohio, or her metropolis; for, next to having an "Irish quarter," a "German quarter" in a large city is most undesirable. The priests, no doubt, judge rightly, both in reference to their notions of discipline, and with a view of maintaining their power; for these peasants, when scattered over the country, and interspersed with Protestants, can not be made to confess regularly, attend mass, and read orthodox German newspapers, three of which are published here daily, and one weekly, all under ecclesiastical censorship. There are a large number of German Protestants, and 20,000 Catholics, in all twelve churches, where the service is performed in the German language. Only half of these are Romanist churches, but they are much more crowded than the others. The chief emigration has been from Bavaria, Baden, Swabia, Wirtemberg, and the Black Forest, and they are almost all imbued with extreme democratic notions, which the ordinary European training, or the working of semi-feudal institutions, evidently fosters in the minds of the million, far more than does the republicanism of the United States. The Romanist priests feel, or affect, sympathy with this political party, and in the last election they instructed the Germans and the Irish to vote for Polk against Clay. It ought, indeed, to serve as a warning, and afford serious matter of reflection to the republicans of America, that a church which requires the prostration of the intellect in matters of faith and discipline, and which is most ambitious of wordly power, is also of all others the most willing

to co-operate with the ultra-democratic party. Are the priests conscious of having embarked in a common cause with the demagogue, and that they must, like him, derive their influence from courting the passions, prejudices, and ignorance of the people? If so, one method alone remains for combating both—the removal of ignorance by a well-organized government system of schools, neither under sectarian or ecclesiastical control, nor under the management of any one political party.

In the city, the New Englanders appeared to me to have lost political weight since we were last here. To show me how seriously the priests interfere in their domestic affairs, a bookseller told me that he had just lost the services of a young shopman who, although a Protestant, like his father, found that his mother, a Catholic, considered it her duty never to let him rest till he adopted some other profession. The priest had told her that he was constantly handling dangerous and heretical books in his store, with which his mind must be contaminated.

In many of the large towns, in the valley of the Mississippi, the Catholics have established such excellent schools, and enforced discipline so well, that the children of Protestants have been attracted there, and many have become proselytes; but I heard of still more Catholics who have become converts to Protestantism, and I can not but believe that Romanism itself will undergo many salutary modifications under the influence of the institutions of this country.

I made an excursion with Messrs. Buchanan, James, Carley, Clark, and Anthony, to Mill Creek, a tributary valley of the Ohio, where loam and gravel, with fresh-water shells, overlies a deposit of leaves and fossil stems of trees. The shells are of recent species, and the layer of vegetable matter of the same age as that which contains the bones of the mastodon, elephant, megalonyx, and other extinct animals at Big Bone Lick, in Kentucky.* I afterward saw in the city some beautiful collections of Silurian fossils from the blue limestone, and was struck with the dimensions of some of the trilobites of the genus *Isoteles*, the most

* See ante, p. 194, and "Travels in North America," vol. ii. pp. 62, 65, 67.

their veins ; they confessed themselves unable to guess, for the two girls were not only among the best scholars, but better looking and less dark than many of the other pupils.

At Mr. Longworth's we saw a beautiful piece of sculpture, an ideal head called *Ginevra*, by Hiram Powers, who had sent it from Rome as a present to his first patron. It appeared to me worthy of the genius of the sculptor of "*Eve*" and the "*Greek Slave*." Thorwaldsen, when he saw Powers' "*Eve*," foretold that he would create an era in his art ; and not a few of the Italians now assign to him the first place in the "*Naturalista*" school, though assuredly there is much of the ideal also in his conceptions of the beautiful. It augurs well for the future cultivation of the fine arts in the United States, that the Americans are as proud of their countryman's success as he himself could desire.

CHAPTER XXXVII.

Cincinnati to Pittsburg.—Improved Machinery of Steamer.—Indian Mound.—Gravel Terraces.—Pittsburg Fire.—Journey to Greensburg.—Scenery like England.—Oregon War Question.—Fossil Foot-prints of Air-breathing Reptile in Coal Strata.—Casts of Mud-cracks.—Foot-prints of Birds and Dogs sculptured by Indians.—Theories respecting the Geological Antiquity of highly organized Vertebrata.—Prejudices opposed to the Reception of Geological Truths.—Popular Education the only Means of preventing a Collision of Opinion between the Multitude and the Learned.

April 13, 1846.—FROM Cincinnati we embarked in the Clipper steamer for Pittsburg, a distance of no less than 450 miles ; so magnificent is the scale of the navigation of this mere tributary of the Mississippi ! Yet there are other large steamers also plying above Pittsburg, on the tributaries of the Ohio. We observe more punctuality than in 1842, in the starting of the steamers. The Clipper made ten miles an hour against the current, including stoppages. We fell in with some large artificial rafts of wood stretching more than half across the river, and met a steamer, which had run foul of one of them, still entangled, and, though bound for Pittsburg, floating down the stream with the raft. Our steamer only draws $3\frac{1}{2}$ feet water, and her engines are of a very peculiar construction, hitherto used in sea-boats only, with the exception of one on Lake Erie. The inventor of this improvement is Thomas K. Litch. There are two cylinders, one twice the size of the other, and the steam escapes from the smaller into the larger, instead of issuing into the open air, so that its heat is not lost. The economy of fuel arising from this contrivance is great, and the vibrations and noise much less than in other boats on the same high-pressure principle. In place of the usual bell, signals are made by a wild and harsh scream, produced by the escape of steam, as in locomotive engines ; a fearful sound in the night, and which, it is to be hoped, some machinist who has an ear for music will find means to modulate.

There was a Pennsylvanian farmer on board who told me that, having a large family to provide for, he had resolved to settle in Indiana, and was returning from that state, after making a purchase of land in "the rolling prairies." He had paid the usual government price of $1\frac{1}{4}$ dollar, or about 5s. 6d. an acre; whereas he could sell his own property in Pennsylvania, which had a house on it, at the rate of 60 dollars an acre. He had been much concerned at finding a strong war party in the west, who were eager to have a brush with the English. "It was a short-sighted policy," he remarked, "in your country, to exert so little energy and put forth so small a part of her strength in the last war with the United States. It will one day involve both you and us in serious mischief."

At a point about twenty-four miles below Wheeling, we came to the largest of the Indian mounds on the Ohio, of which I have spoken in my former "Travels."* It is between 60 and 70 feet high, rising from a flat terrace of loam, and a very striking object, reminding one, by its shape, of the pyramidal Teocallis of the ancient Mexicans, of which Humboldt has given figures, and which are so well described by Prescott, in his "History of Cortes." As we approached Wheeling, the valley of the Ohio became narrower, and the hills, composed of strata of the coal formation, sensibly higher. The State of Ohio was on our left hand, or the northern bank of the river, and that of Virginia on our right. The flat terrace of loam and gravel, extending everywhere from the base of the hills to the river's bank, forms a picturesque contrast to the steep slope of the boundary hills, clothed partly with ancient timber, and partly with a second growth of trees of less height, which has sprung up where clearings have been made. It is worthy of remark, that the materials of the great terrace of loam and gravel become more and more coarse as we approach nearer the mountains between Wheeling and Pittsburg, and at the same time the terrace itself is more and more elevated above the level of the river. It appeared to be about 60 feet high near the mouth of the Great Kanawha, and about 80 feet high at Georgetown, 40 miles below Pittsburg,

* Vol. ii. p. 32.

which I can only explain by reference to the theory before advanced ;* namely, by supposing the amount of subsidence, as well as of the subsequent upward movement, to have been greater inland, or farther north, than in the south, or nearer the Gulf of Mexico.

April 16.—There had been so hard a frost in the night, that the roof of our steamer's cabin was glazed with a thin sheet of ice as we approached Pittsburg, and we heard fears expressed that the fruit trees would be injured. Four years had elapsed since we were last at Pittsburg, and, in the interval, a considerable part of the city, covering sixty acres, had been burnt to the ground, the great roofed bridge over the Monongahela, all built of wood, having shared the same fate. A light suspension bridge has already replaced that structure of ponderous aspect, and although the conflagration only happened in April of last year, new streets have sprung up every where from the ashes of the old, and the town has very far from a ruined or desolate look. Commanding the navigation of three great rivers, and an inexhaustible supply of coal, it has every advantage save that of an atmosphere free from coal smoke.

I learnt that there had recently been a strike of the factory girls here for ten instead of twelve hours of daily labor. Their employers argue that they are competing with rivals who work their girls twelve or more hours per day, and the strike has failed ; yet many are of opinion, that even without legislative interference, a ten-hour rule will be eventually established.

Most of our companions in the steamer were agents of commercial houses going to look out for orders at Pittsburg. On the whole they were very intelligent, and conversed well on a variety of subjects, while most of them were too gentlemanlike to feel ashamed of "the shop." But we had now been living so many weeks in public with strangers, and without opportunities of choosing our society, that great was our delight to be able to hire at Pittsburg a private carriage, and set out alone on an expedition to Greensburg, 32 miles distant, where I had a point of geological interest to investigate. As we were leaving the hotel, a

* See ante, p. 195.

news-boy, finding I was supplied with newspapers, offered to sell me a cheap American reprint of the miscellaneous works of Lord Jeffrey, assuring me that "it contained all the best articles he had written in the *Edinburg Review*."

To be once more climbing hills even of moderate height, was an agreeable novelty after dwelling so long on the flat plains of the Mississippi. We were on the direct road, leading across the Alleghanies to Harrisburg. The scenery often reminded us of England, for we were traveling on a macadamized road, and passing through turnpike gates, with meadows on one side, and often on the other large fields of young wheat, of an apple-green color, on which a flock of sheep, with their lambs, had been turned in to feed. The absence of stumps of trees in the fields was something new to us, as was the non-appearance for a whole day of any representative of the negro race. Here and there a snake-fence, and a tall strong stubble of maize, presented a point of contrast with an English landscape. In some of the water-meadows the common English marigold (*Caltha palustris*) was in full flower. At one turn of the road, a party of men on foot came in sight, each with his rifle, and they were followed, at a short distance, by a wagon with women and children, and a train of others laden with baggage. Our driver remarked that they were "movers," and I asked him if he ever knew an instance of an American migrating eastward. He said that he was himself the only example he ever heard of; for he was from Kentucky, having come the year before to satisfy his curiosity with a sight of the great Pittsburg fire. There he found a great demand for work, and so was tempted to stay.

Our road lay through East Liberty, Wilkinsburg, and Adamsburg. Some day-laborers, who were breaking stones on the road, told me they were receiving seventy-five cents, or three shillings, a day; and this in a country where food and fuel are much cheaper than in England, although clothing is rather dearer.

Near Turtle Creek, two farmers conducted me to a spot where coal was worked, and where the undulating ground consisted of sandstone, limestone, and shale, green and black, of the coal-formation, precisely resembling strata of the same age in England,

both in mineral appearance, and in most of the species of imbedded fossil plants.

About fifteen miles before we reached Greensburg, we saw, in the extreme distance, the blue, faint, long, and unbroken line of the most western ridge of the Alleghanies.

Greensburg is a neat, compact town of about 1000 inhabitants. The houses are all of brick ; there is a court-house and five churches, some Lutheran, others Calvinistic, the German language being used in some, and the English in others. They publish three newspapers. We took up our quarters at a comfortable old-fashioned inn, where we were waited upon by the members of the family, for the difficulty of hiring or retaining servants here, seems to be extreme. One girl had left a lady, whose acquaintance we made, because, being a farmer's daughter, she was not allowed to sit down at table with her mistress. The lady's sister, who was accomplished, and conversed with us on many literary subjects, was obliged to milk the cow for the whole summer, though they were in easy circumstances, such was the scarcity of "help." Fortunately for us, my wife and I had, by this time, acquired the habit of waiting on ourselves in the inns, going occasionally down to the kitchen to ask for things, in a way which in England would be thought quite derogatory to one's dignity, especially in the eyes of the servants, whose trouble would thereby be lessened. Here, on the contrary, we found that it made us popular. The general system in America that servants at inns receive no gratuities, but are paid ample wages instead, is one cause of this difference. Yet much may be said in its favor, as it raises the independence of the servants, and relieves strangers from the perplexity of determining what fees are suitable.

There was a crowded public meeting the day of our arrival, at which several orators were haranguing an audience of the lowest class, in favor of war with England about Oregon. The walls were placarded with bills, on which were printed, in large letters, these words, "Forty-Five, or Fight," which meant that the Oregon Territory must extend as far north as the 45th degree of latitude.

This ambition of the people of the west to possess Oregon, is at least no new idea, for I happened to purchase at Louisville an old guide-book, describing the Falls of the Ohio and the city, in which, when speaking of commercial matters, the colonization and annexation of Oregon was set forth as the means of "opening a direct trade with China." I observed to one of the citizens, that it was satisfactory to see that none of the upper, or even of the middle classes, were taking any part at Greensburg in this agitation. He shook his head, and said, "Very true; but these meetings are most mischievous, for you must bear in mind, that your nobody in England is our everybody in America."

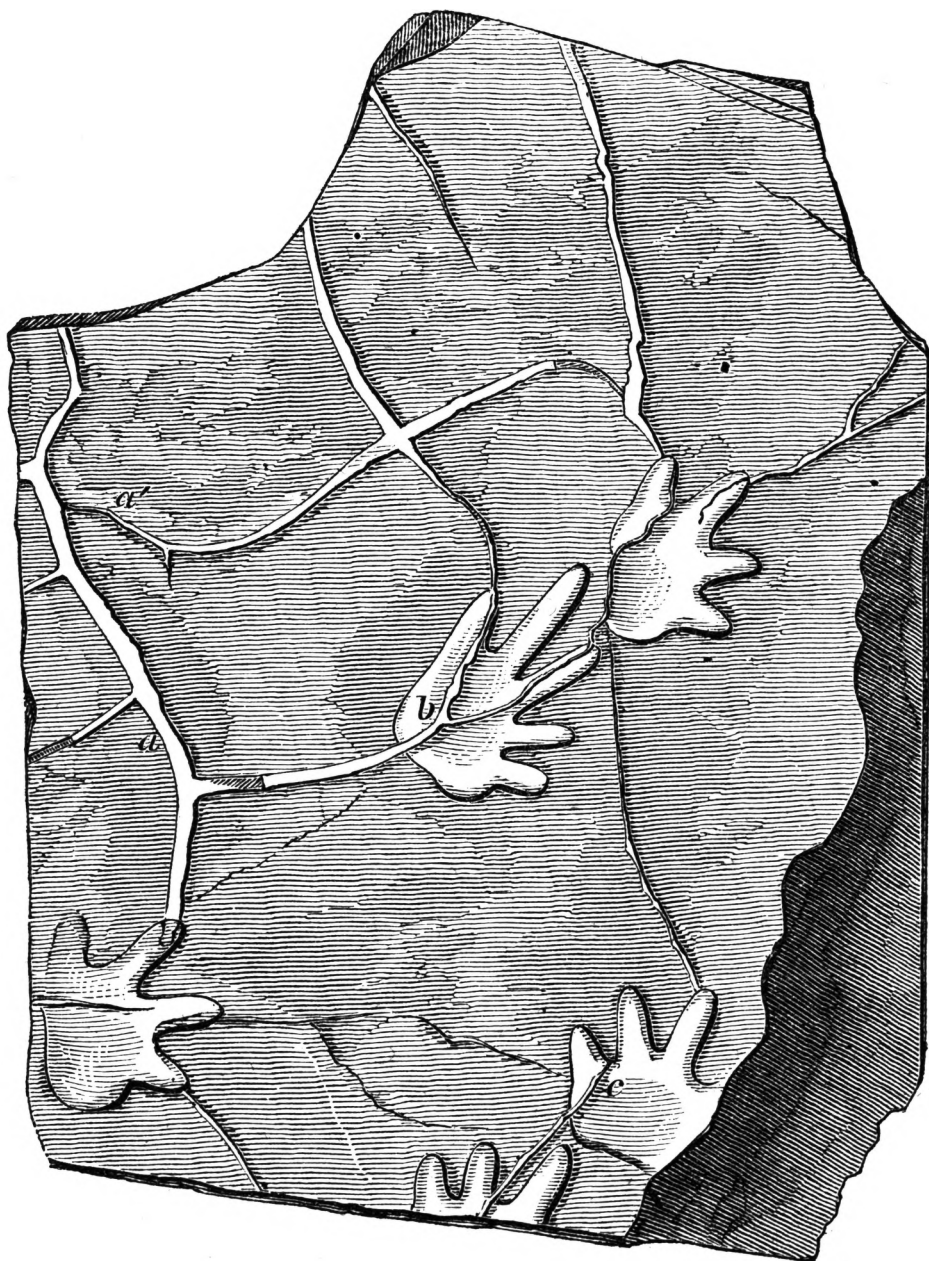
I had determined to visit Greensburg, on my way from Pittsburg to Philadelphia, that I might examine into the evidence of the reality of certain fossil foot-prints of a reptile said to have been found in strata of the ancient coal-formation, and of which Dr. King, of Greensburg, had published an account in 1844. The genuineness of these foot-marks was a point on which many doubts were still entertained, both in Europe and America, and I had been requested by several geological friends not to return without having made up my mind on a fact which, if confirmed, was of the highest theoretical importance. Up to this period, no unequivocal proofs had been detected of the fossil remains of vertebrated animals more highly organized than fishes, in strata of such antiquity as the carboniferous rocks, and the absence of air-breathing quadrupeds or birds, served to constitute negative evidence, of peculiar significance, in reference to the coal-measures, because, as before stated,* they contained the monuments of shallow fresh-water swamps, and often of surfaces of land covered with a luxuriant vegetation of *terrestrial* plants, some of the buried trees of which still remain with their roots in their natural position. That we should never have found, in such deposits, the remains of air-breathing creatures, except a few insects, that we should not yet have met with a single mammifer or bird, or lizard, snake, or tortoise, or the faintest indication of their existence, seemed most inexplicable, and led many geologists to embrace the opinion, that no beings having a higher

* See ante, p. 185.

organization than fishes, were created till after the carboniferous strata had been elaborated.

During my stay in Westmoreland County, I was indebted to Dr. King for the most active assistance in the prosecution of my inquiries. He kindly devoted several days to this object, and we first visited together a stone quarry in Union township, six miles southeast of Greensburg, on a farm belonging to Mr. Gallagher, where the foot-marks had been first observed, standing out in relief from the lower surface of slabs of sandstone, resting on thin layers of fine clay. These slabs were extracted for paving-stones, and the excavation was begun in the bank of a small stream, where there was at first a slight thickness only of shale overlying the harder beds; but as they cut their way into the bank, the mass of shale became so dense as to oblige them to desist from the work. Between the slabs of stone, each a few inches thick, were thin parting layers of a fine unctuous clay, well fitted to receive and retain faithful impressions of the feet of animals. On the upper surface of each layer, Dr. King saw the foot-steps impressed more or less distinctly; but, as the clay was left exposed to the weather, it had crumbled to pieces before I examined it, and I had only an opportunity of seeing the casts of the same projecting in relief from the under sides of slabs of argillaceous sandstone. I brought away one of these masses, of which the annexed figure (fig. 12) is a faithful representation; and it will be observed that it displays not only the marks of the foot-prints of an animal, but also casts of cracks, *a*, *a'*, of various sizes, which must have existed in the clay. Such casts are produced by the drying and shrinking of mud, and they are usually detected in sandstones of all ages in which foot-marks appear. It will be seen that some of these cracks, as at *b*, *c*, traverse the foot-prints, and they not unfrequently produce distortion in them, as might have been expected, for the mud must have been soft when the animal walked over it and left the impressions, whereas, when it afterward dried up and shrank, it would become too hard to receive such indentations. I have alluded, in my former "Travels,"* to the recent foot-prints of birds called sand-pipers

* Vol. ii. p. 168.

Fig. 12.

Scale one-sixth the original.

Slab of sandstone from the coal-measures of Pennsylvania, with foot-prints of air-breathing reptile and casts of cracks.

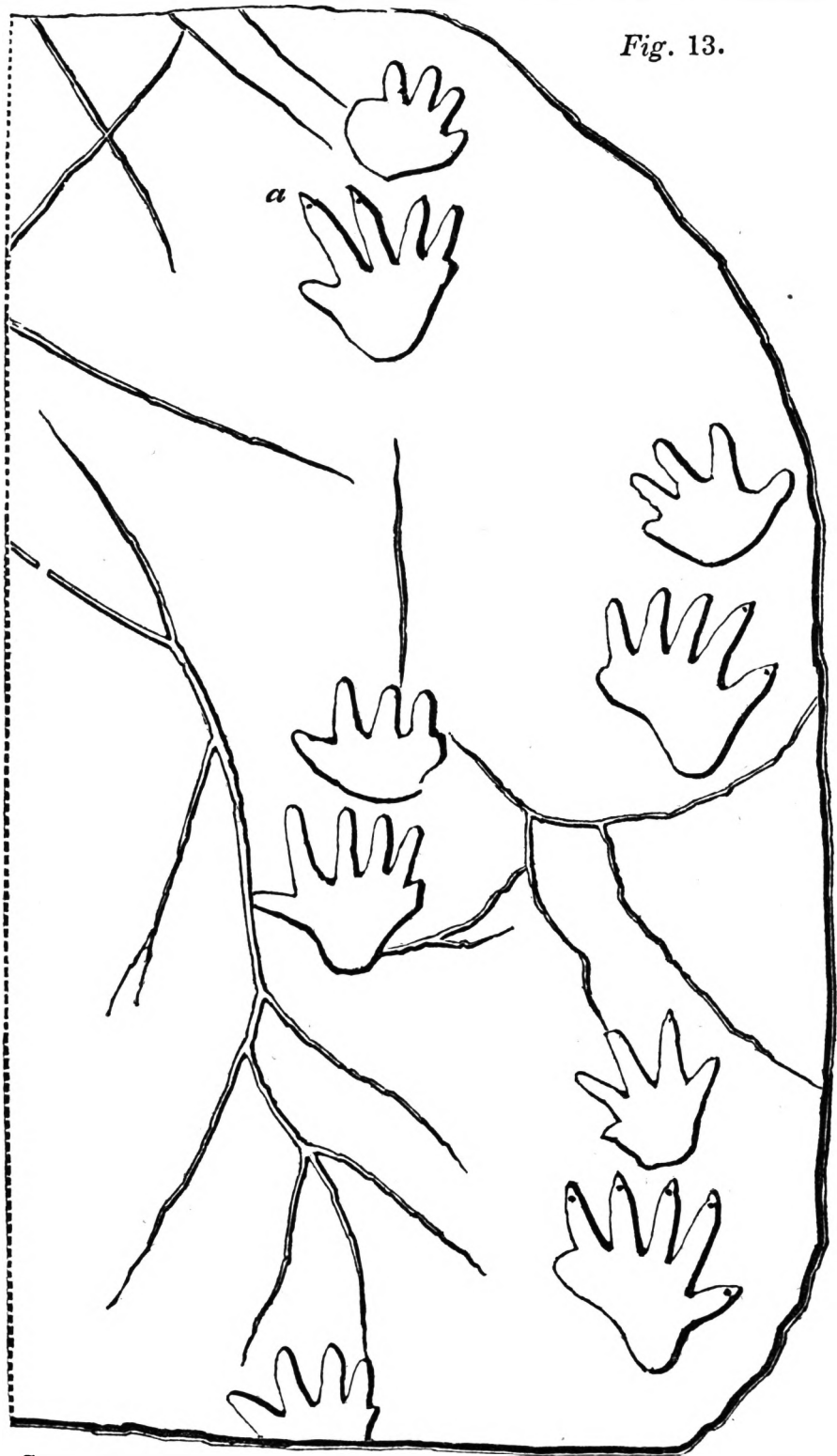


Fig. 13.

Series of reptilian foot-prints in the coal-strata of Westmoreland County, Pennsylvania.

a. Mark of nail ?

(*Tringa minuta*), which I saw running, in 1842, over the red mud thrown down by every tide on the borders of estuaries connected with the Bay of Fundy. When this mud, which extends over thousands of acres, has been baked by the hot summer sun of Nova Scotia, it shrinks and cracks to the depth of several inches or even feet, and acquires such consistency as to be divisible into the successive layers of which it is composed, presenting on many upper surfaces impressions of birds' feet and cracks, and on the under sides the casts of the same standing out in relief.*

I have also stated† that on the sea beach near Savannah, in Georgia, I saw clouds of fine sand drifted by the wind, filling up the foot-prints of racoons and opossums, which a few hours before had passed along the shore, after the retreat of the tide. This process will account, in a satisfactory manner, for the sharpness of many fossil casts of animals in ancient rocks, as the grains of uniformly fine sand were poured into the newly made cavities, not by a current of water, which could scarcely have failed to disturb the soft mud, but by the air, which could not cause the slightest derangement of the most delicate imprints.

No less than twenty-three foot-steps were observed by Dr. King on slabs in the stone quarry of Union township, before mentioned, before its abandonment, and the greater part of these were so arranged (see fig. 13) as to imply that they were the marks of the successive foot-steps of the same animal. Every where there was seen a double row of tracks, occurring in pairs, each pair consisting of a hind and fore foot, and each being at nearly equal distances from the next pair. The toes in each of these parallel rows turn the one set to the right, the other to the left. It is instructive to compare these impressions with those which had previously been met with in an ancient European rock (although one of less antiquity than the coal-formation), namely, the new red sandstone or Trias of Saxony and Cheshire. The accompanying figure (fig. 14) represents the Saxon Cheiro-

* I have presented specimens of this red mud, with the foot-prints of birds, to the British Museum, Geological Society, and Museum of Economic Geology.

† Travels, vol. i. p. 167.

Fig. 14.

Hildburg-
hausen,
Saxony.

therium, so called by Professor Kaup, because the marks both of the fore and hind feet resemble the shape of a human hand. Now in these European hand-shaped foot-marks, both the hind and fore feet have each five toes, and the size of the hind foot is about five times as large as the fore foot; but in the American fossil (fig. 13), the posterior foot-print is not nearly twice as large as the anterior, and the number of toes is unequal, being five in the hinder and four in the anterior foot. In the Greensburg animal, as in the European *Cheirotherium*, the fifth toe stands out nearly at a right angle with the foot, and somewhat resembles the human thumb. On the external side of all the Pennsylvanian tracks, both the larger and smaller, there is a protuberance like the rudiment of another toe. The average length of the hind foot is five and a half inches, and of the fore foot four and a half. The fore and hind feet being in pairs, follow each other very closely, there being an interval of about one inch only between them. Between each pair the distance is six to eight inches, and between the two parallel lines of tracks there is about the same distance.

In the case of the European *Cheirotherium*, whether English or German, the hind and fore feet occur in pairs, but they form only one row, as in fig. 14, in consequence of the animal having put its feet to the ground nearly under the middle of its body, and the thumb-like toes are seen to turn to the right and to the left in the alternate pairs. But in the American tracks, which form two parallel rows, all the thumb-like toes in one set turn to the right, and in the other set to the left. We may infer, therefore, that the American *Cheirotherium* belongs to a new genus of reptilian quadrupeds, wholly distinct from that which characterizes the triassic strata of Europe, and such a generic diversity might have been expected in reptilian fossils of such different ages.

The geological position of the sandstone of Greensburg is perfectly clear, being situated in the midst of the Appalachian coal-

field, having the main bed of coal, called the Pittsburg seam, three yards thick, a hundred feet above it, worked in the neighborhood, and several other seams of coal at lower levels. The impressions of *Lepidodendron*, *Sigillaria*, *Stigmara*, and other characteristic carboniferous plants, are found both above and below the level of the reptilian foot-steps.

We may safely assume that the huge reptile which left these prints on the ancient sands of the coal-measures was an air-breather, for its weight would not have been sufficient under water to have made impressions so deep and distinct. The same conclusion is also borne out by the casts of the cracks above described, for they show that the clay had been exposed to the air and sun, so as to have dried and shrunk. As we so often see the ripple mark preserved in sandstones of all ages, and in none more frequently than in the American and European coal strata, we ought not to feel surprised that superficial markings, such as foot-prints, which are by no means more perishable or evanescent in their nature, should have been faithfully preserved down to our times, when once the materials had been hardened into stone.

There are some bare ledges of rock, composed of pure white quartzose grit of the coal-measures, standing out exposed above the general level of the ground, in many places near Greensburg, especially near Derry, in Westmoreland County, about fourteen miles north of Greensburg. They are so bare that scarcely any lichens grow upon them, and on some of them the foot-prints of birds, as well as those of dogs and some other quadrupeds have been artificially cut. After examining them carefully, I entertain no doubt that they were sculptured by Indians, for there are many Indian graves near Derry, and one of their paths, leading through the forest from the Alleghany Mountains to the west, lay precisely in the line of these curious carvings. The toe joints in the feet of the birds thus cut are well indicated, as might have been expected, for the aboriginal hunting tribes of North America were skillful in following the trail of all kinds of game, and are known to have carved in some places on rocks, many rude imitations of the external forms of animals. If, therefore, they were sometimes tempted to use the representation of foot-prints as symbols of the

birds or quadrupeds which they hunted, they would be not unlikely to give very accurate copies of markings with which they were so familiar. The important observations made by Dr. King relatively to the fossil imprints, called the attention of the whole country to the Indian antiquities of comparatively modern date ; but the popular notion that there was a connection between them is wholly erroneous.

Since the announcement, by Dr. King, in 1844, of the proofs of the existence of reptiles at the period when the coal strata of Pennsylvania were formed, Professor Goldfuss, of Bonn, has published the description of more than one saurian found in the ancient coal-measures of Saarbruck, near Treves.

Never, certainly, in the history of science, were discoveries made more calculated to put us on our guard for the future against hasty generalizations founded on mere negative evidence. Geologists have been in the habit of taking for granted, that at epochs anterior to the coal there were no birds or air-breathing quadrupeds in existence ; and it seems still scarcely possible to dispel the hypothesis that the first creation of a particular class of beings coincides in date with our first knowledge of it in a fossil state, or the kindred dogma that the first appearance of life on the globe agrees, chronologically, with the present limits of our insight into the first creation of living beings, as deduced from organic remains. These limits have shifted, even in our own times, more than once, or have been greatly expanded, without dissipating the delusion, so intense is the curiosity of man to trace back the present system of things to a beginning. Rather than be disappointed, or entertain a doubt of his power to discern the shores of the vast ocean of past time, into which his glances are penetrating, like the telescope into the region of the remoter nebulae, he can not refrain from pleasing his imagination with the idea that some fog-banks, resting on the bosom of the deep, are, in reality, the firm land for which his aching vision is on the stretch.

I can not conclude these remarks on the geological discoveries made in these remote valleys of the Alleghanies, without alluding to a moral phenomenon, which was forcibly brought before my

mind in the course of the investigation. The interest excited by these singular monuments of the olden times, naturally led to animated discussions, both in lecture-rooms and in the columns of the daily journals of Pennsylvania, during which the high antiquity of the earth, and the doctrine of former changes in the species of animals and plants inhabiting this planet before the creation of man, were assumed as established truths. But these views were so new and startling, and so opposed to popular prepossessions, that they drew down much obloquy upon their promulgators, who incurred the censures not only of the multitude, but also of some of the Roman Catholic and Lutheran clergy. The social persecution was even carried so far as to injure professionally the practice of some medical men, who had given publicity to the obnoxious doctrines. Several of the ministers of the Lutheran church, who had studied for years in German universities, were too well informed not to believe in the conclusions established by geologists, respecting the immensity of past time and former vicissitudes, both in animal and vegetable life; but although taking a lively interest in discoveries made at their own door, and joining in the investigations, they were compelled by prudence to conceal their opinions from their congregations, or they would have lost all influence over them, and might perhaps have seen their churches deserted. Yet by maintaining silence in deference to the opinions of the more ignorant, they become, in some degree, the instruments of countenancing error; nay, they are rearing up the rising generation to be, in their turn, the persecutors of many of their contemporaries, who may hereafter be far in advance in their scientific knowledge.

“To nothing but error,” says a popular writer of our times, “can any truth be dangerous; and I know not,” he exclaims, “where else there is seen so altogether tragical a spectacle, as that religion should be found standing in the highways, to say, ‘Let no man learn the simplest laws of the universe, lest they mislearn the highest. In the name of God the Maker, who said, and hourly yet says, *Let there be light*, we command that you continue in darkness!’ ”*

* Letter on Secular Education, by T. Carlyle, July, 1848.

Goldsmith, in the "Vicar of Wakefield," makes his traveler say, that after he had walked through Europe, and examined mankind nearly, he found that it is not the forms of government, whether they be monarchies or commonwealths, that determine the amount of liberty enjoyed by individuals, but that "riches in general are in every country another name for freedom." I agree with Goldsmith that the forms of government are not alone sufficient to secure freedom—they are but means to an end. Here we have in Pennsylvania a free press, a widely extended suffrage, and the most perfect religious toleration—nay, more than toleration, all the various sects enjoying political equality, and, what is more rare, an equality of social rank, yet all this machinery is not capable, as we have seen, of securing even so much of intellectual freedom as shall enable a student of nature to discuss freely the philosophical questions which the progress of science brings naturally before him. He can not even announce with impunity, results which half a century of observation and reasoning has confirmed by evidence little short of mathematical demonstration. But can riches, as Goldsmith suggests, secure intellectual liberty? No doubt they can protect the few who possess them from pecuniary penalties, when they profess unpopular doctrines. But to enable a man to think, he must be allowed to communicate freely his thoughts to others. Until they have been brought into the daylight and discussed, they will never be clear even to himself. They must be warmed by the sympathy of kindred minds, and stimulated by the heat of controversy, or they will never be fully developed and made to ripen and fructify.

How, then, can we obtain this liberty? There is only one method; it is by educating the millions, and by dispelling their ignorance, prejudices, and bigotry.

Let Pennsylvania not only establish numerous free schools, but let her, when she organizes a system of government instruction, raise the qualifications, pay, and station in society of the secular teachers, as highly as Massachusetts is now aspiring to do, and the persecution I have complained of will cease at once and forever.

The project of so instructing the millions might well indeed be

deemed Utopian, if it were necessary that all should understand the patient and laborious trains of research and reasoning by which we have arrived at grand generalizations in geology, and other branches of physical science. But this is not requisite for the desired end. We have simply to communicate the results, and this we are bound to do, without waiting till they have been established for half a century. We ought rather carefully to prepare the public mind for new conclusions as soon as they become highly probable, and thus make impossible that collision of opinion, so much to be deprecated, between the multitude and the learned.

It is as easy to teach a peasant or a child that the earth moves round the sun, as to inculcate the old exploded dogma that it is the motionless center of the universe. The child is as willing to believe that our planet is of indefinite antiquity, as that it is only 6000 years old. Tell him that the earth was inhabited by other races of animals and plants before the creation of man, as we now know it to have been, and the idea is not more difficult for him to conceive than the notion which is usually allowed to take root in his mind, that man and the species of animals and plants, now our contemporaries, were the first occupants of this globe. All that we require, when once a good system of primary and normal schools has been organized, is a moderate share of moral courage and love of truth, on the part of the laity and clergy ; and then the academical chair and scientific lecture-room, and every pulpit, and every village school, may be made to speak the same language, in regard to those natural phenomena, which are of a kind to strike and interest the popular mind.*

* The substance of the above remarks, on the fossil foot-prints of Greensburg, was given by me in a Lecture to the Royal Institution, London, Feb. 4, 1848.



CHAPTER XXXVIII.

Greensburg to Philadelphia.—Crossing the Alleghany Mountains.—Scenery.—Absence of Lakes.—Harrisburg.—African Slave-trade.—Railway Meeting at Philadelphia.—Borrowing Money for Public Works.—Negro Episcopal Clergyman.—Washington.—National Fair and Protectionist Doctrines.—Dog-wood in Virginia.—Excursion with Dr. Wyman.—Natural History.—Musk-rats.—Migration of Humming-birds to New Jersey.

April 19, 1846.—LEFT Greensburg, intending to cross the Alleghany Mountains to Harrisburg, and go thence to Philadelphia. We started in the evening in a large stage coach, in which were nine inside passengers, so that our night journey through Youngstown, Stonytown, and Shellsburg was fatiguing, and not the less so by our having twice to turn out in the dark, while all the luggage was shifted to a new vehicle. The last of these broke down, one of the wheels having given way, and we had an opportunity of witnessing the resources and ingenuity displayed on such occasions by American travelers. A large bough of a tree was cut off with an ax, and tied on to the axletree with ropes, so as to support the body of the carriage, and in this way we went several miles without inconvenience. During one of the night transfers of our luggage a carpet bag of mine was left behind, and when I afterward missed it at Philadelphia I wrote to three places to claim it. After five days I found it in my room in the hotel, no one knowing whence it came, and nothing having been paid for it. Before reaching Philadelphia it must have been transferred to three distinct conveyances, including two railways. I may state here a fact highly creditable to the public conveyances in the United States, that I never lost a package in either of my tours, although I sent more than thirty boxes of geological specimens from various places, often far south of the Potomac, and west of the Alleghanies; some by canals, some by river steamers, others by coaches or railways. Every one of them sooner or later found their way safely to my house in London.

On leaving Greensburg we crossed one after another of the long parallel ridges of which the Alleghany chain is composed, descending into each of the long intervening valleys, the hills becoming higher and higher as we advanced eastward. The character of the forest changed as we came to higher ground, especially by the intermixture of trees of the fir tribe, and by the undergrowth of azaleas, kalmias, and rhododendrons, for I had seen none of these evergreens since I left Indiana, not even under the oak wood round Greensburg. When day dawned we had reached the highest part of our road, and enjoyed a splendid mountain view, the steep wooded slopes being relieved by the contrast of green meadows bordering the rivers in the bottom of each deep valley, while in many parts of the landscape a picturesque effect was produced by what appeared to be extensive lakes. All who were strangers to the scene required to be assured that they were not really sheets of water ; yet they were simply banks of dense white fog resting on the low grounds, which the heat of the sun would soon dissipate. It is singular that there are no lakes in the Appalachian chain, all the rivers escaping from the longitudinal valleys through gorges or cross fissures, which seem invariably to accompany such long flexures of the strata as characterize the Alleghanies or the Jura.

In Campbell's "Gertrude of Wyoming," indeed, we see—

"Lake after lake interminably gleam,"

amidst the Appalachian ridges ; but such characteristics of the scenery of this chain are as pure inventions of the poet's imagination, as the flamingoes, palms, and aloes with which he adorns the banks of the Susquehanna.

Near the highest summit of the chain I saw two seams of excellent coal, one of them twelve feet thick, in strata belonging to the same series which I had examined near Greensburg. After descending from the highest level, we followed for a time the windings of the Juniata River, the road often bounded by high rocky cliffs, on the ledges of which we saw the scarlet columbine, blue hepatica, and other wild flowers in blossom.

We slept at Chambersburg, where, on the roof of the court-

house, stands a statue of Franklin, holding a lightning conductor in his hand. A company of firemen were exercising their engines in the great square, throwing up powerful jets of water high enough to wash the statue.

From Chambersburg we went on by railway at the rate of fourteen miles an hour, only slackening our pace when we passed through the middle of towns, such as Shippensburg and Carlisle, where we had the amusement of looking from the cars into the shop windows.

On reaching the Susquehanna we came in sight of Harrisburg, the seat of Legislature of Pennsylvania, a cheerful town, which makes a handsome appearance at a distance, with its numerous spires and domes. The railway bridge over the river had been burnt down, and the old bridge carried away by a recent freshet, when large fragments of ice were borne down against the piers.

Among the passengers in the railway to Philadelphia, was an American naval officer, who had just returned from service on the coast of Africa, fully persuaded that the efforts made by the English and United States fleets to put down the slave-trade, had increased the misery and loss of life of the negroes, without tending to check the traffic, which might, he thought, have been nearly put an end to before now, if England and other countries had spent an equally enormous sum of money in forming settlements such as Liberia; although he admitted that negroes from the United States, whose families had been acclimatized in America for several generations, and who settled in Liberia, were cut off by fever almost as rapidly as Europeans.

Returning to Philadelphia, after an absence of six months, we were as much pleased as ever with the air of refinement of the principal streets, and the well-dressed people walking on the neat pavements, under the shade of a double row of green trees, or gazing, in a bright, clear atmosphere, at the tastefully arranged shop windows; nor could we agree with those critics who complain of the prim and quakerish air, and the monotonous sameness, of so regularly built a city.

During our stay, a large meeting was held to promote a scheme for a new railway to Pittsburg, through Harrisburg, the interest

of the money to be raised chiefly by city rates. Some of my friends here are opposed to the measure, declaring that such public works are never executed with economy, nor thriftily managed. The taxation always falls on some districts, which derive no profit from the enterprise, and they demand other grants of public money as a compensation, and these are laid out with equal extravagance. The good sense of the New Englanders, say they, has almost invariably checked them from entering upon such undertakings, and in one of the few instances in which they have deviated from sound policy, they have repented. For when, in opposition to the richer inhabitants, a branch railway was made to connect Bridgeport, in Connecticut, with the main line of road, the bonds of that small inland town were pledged as security for the money borrowed. The traffic proved insufficient to meet their liabilities, and a majority of the citizens then determined to repudiate. The rich alleged that they had opposed the project, and the poor, who had voted away their money, were quite willing that no new taxes should be imposed. The creditors, however, went to law, and, by aid of the courts, compelled payment, as the Supreme Court might have done in the case of the delinquent states (had not the original constitution of the Union been altered before any of them repudiated), which might have given a wholesome check to rash enterprises guaranteed by state bonds.

The booksellers tell me that their trade is injured by the war-panic, and I observe that most of the halfpenny, or cent papers, are still very belligerent on the Oregon question.

On Sunday, I attended service, for the first time, in a free black Episcopal church. Prayers were read well by a negro clergyman, who was evidently an educated man. The congregation consisted wholly of the colored race. Where there is a liturgy, and where written sermons are read, there is small opportunity of comparing the relative capabilities of Africans and Europeans for the discharge of such functions. In the Baptist, Methodist, and Presbyterian services, the success of the minister depends much more on his individual ability. I was glad, however, to see a negro officiating in a church which confers so much social rank on its clergyman, and in no city more than Philadelphia

does the colored race stand in need of some such make-weights to neutralize the prejudices which retard their natural progress. We were told of an ineffectual attempt, recently made by a lady here, to obtain leave to bury a favorite free negro woman in St. James's graveyard, although she had died a member of the Episcopal church ; nor are any colored people allowed to be buried at the Laurel Hill Cemetery. That burial-ground commands a beautiful view up and down the Schuylkill, and the ground there is laid out with much taste, being covered with evergreens and trees, and having many of the graves adorned, at this season, with violets and lilies of the valley.

April 27.—Leaving my wife with some friends at Philadelphia, I set out on a geological tour to Richmond, Virginia, to resume my examination of the Oolitic coal-field, left half-finished in December last. At Washington I found they were holding a national fair, or grand exhibition of manufactured articles, intended to convince Congress of the advantage of a high tariff. The protectionists maintain that every article which, for seven years, has been shielded from foreign competition, has been reduced in price to the consumer below the foreign cost at the time when the duty was imposed. The free-traders, on the other hand, argue, that their antagonists keep out of sight the fact that in those same seven years the price of the foreign articles might, and probably would, have fallen as much. One party points to the former policy of Great Britain toward her American colonies ; how she interdicted them from manufacturing for themselves, and even from selling the productions of their own soil and industry to any but the mother country ;—how she grew rich by monopoly and restrictions, nursing her infant agriculture, commerce, and factories, by prohibitive duties ; and they ask whether, if the English cabinet really believed in the theory of free-trade, they would not long ere this have repealed the navigation laws ? The advocates of the opposite policy appeal to the recent law for admitting American corn duty-free into England, as demonstrating the sincerity of the British government. But in this controversy it happens, as usual, that class-interests are espoused with all the personal zeal and energy with which men pursue a private object,

while the cause of science, and the general good of the public, being every body's business, are treated with comparative apathy.

When I arrived in Virginia, April 29th, I found the woods every where enlivened by the dazzling white flowers, or bractææ, of the dog-wood (*Cornus florida*), the average height of which somewhat exceeds that of our white thorn; and when, as often happens, there is a back-ground of cedar or pine, the mass of flower is almost as conspicuous as if a shower of snow had fallen upon the boughs. As we sometimes see a pink variety of the wild thorn in England, so there occurs here, now and then, though rarely, a pink dog-wood. Having never remarked this splendid tree in any English shrubbery or park, I had some fine young plants sent home from a nursery to several English friends, and, among others, to Sir William Hooker, at Kew, who was not a little diverted at my zeal for the introduction of a tree which had been well-established for many years in the British arboretum. But now that I have since seen the dwarfed and shabby representatives of this species in our British shrubberies, I am ready to maintain that it is still unknown in our island. No Virginian, who was not a botanist, could ever recognize it in England as the same plant as the dog-wood of his native land. Yet it is capable of enduring frosts as severe and protracted as are ever experienced in the south of England, and the cause of its flowers not attaining their full size in our climate, is probably a want of sufficient intensity of light and heat.

A great variety of oaks were now in leaf in the Virginian forests, among which I observed the white oak, with its leaves in the shape of a violin, and the willow oak, with long and narrow leaves. The ground underneath these trees was adorned with the pink azalea and many other flowers, among the rest the white violet, a species of phlox, and an everlasting *Gnaphalium*.

The cedar (*Juniperus virginiana*) is often covered at this season with what is termed here the cedar apple (*Podisoma macropus*), supposed by many of the inhabitants to be the flower or fruit of the tree itself. It is a beautiful orange-colored fungus, ornamented with tassels, a very conspicuous object after a shower, but shrinking up if exposed to a day's sunshine.

I made excursions in various directions with my friend Mr. Gifford, to examine the coal mines north and south of Blackheath, near Richmond, and have already given the results of our observations in the first volume.* I afterward made an expedition with Dr. Wyman, now Professor of Comparative Anatomy at Cambridge, Massachusetts, to examine the geology of the tertiary strata round Richmond, and those (of the Eocene period) displayed in the cliffs bordering the Potomac River, near Acquia Creek. In one of our walks we saw some dogs feeding on part of the carcass of a horse, and a group of turkey-buzzards eagerly looking on close at hand, but not daring to share in the repast. Near the same spot were the skulls of two dogs lying bleached in the sun, and in the hollow of each we found the nest of a large species of wasp, somewhat resembling our hornet, containing a good store of honey. On the surface of some pools of water I saw floating the singular seed-vessel of the nuphar, or yellow pond lily (*Nelumbium*). These seeds have been known to vegetate after they have been kept for a hundred years.

In passing through a wood near Acquia Creek, on a hot day, we came upon a large snake, about four feet long, resembling that called the mocassin, which lifted itself up, folding its body into several graceful coils, and then darted its head and neck forward at a dog which had followed us from the inn. The dog dexterously retreated as often as a blow was aimed at him, barking loudly, and enjoying the mock fight. The extremity of the snake's tail, although not armed with a rattle, was in a state of constant vibration.

On a soft sandy road we saw a great many of the ball-rolling beetles (*Ateuchus volvens*), which resemble in form the *Scarabæus sacer* of Egypt. They were all busily engaged in pushing along round balls of dung, in the center of some of which we found an egg, and in others a maggot. A pair of beetles was occupied with each globular mass, which considerably exceeded themselves in size. One of them went before, and usually climbed up the side of the ball till the weight of its body made the mass fall over, the other pushing behind, so as to urge it forward, or at

* Vol. i. p. 211.

least prevent it from rolling back again. We saw two of them in half a minute force a ball for a distance of eighteen inches up a gentle slope, and when they reached a soft part of the road, one of them began to excavate a hole, and soon entirely disappeared under ground, heaving up the earth till it cracked and opened wide enough to allow his companion to push the ball of dung into it. The round mass immediately began to sink, and in a few minutes was out of sight. We saw another pair try in vain to bury their treasure, for they had selected a spot where the soil was too hard; at last they gave up the attempt, and, rolling it away, set out in search of a more favorable spot.

We crossed several plowed fields on the slope of the hills which descend toward the Potomac, where a singular kind of manure is used, consisting of dead fish, and almost exclusively of the bony pike, or gar-fish (*Lepidosteus oxyurus*). The hard stony scales resist decomposition for several years. The fishermen told us that they are greatly annoyed by constantly taking these pikes in their nets with the herrings. There is so enormous an abundance of herrings in some spots in this estuary, that 50,000 have sometimes been taken this season in a few hours.

In a marsh near the inn, we observed numerous habitations of the musk-rat, standing up like hay-cocks. When the small size of the animal is considered, the quantity of dried grass, reeds, and rushes accumulated in one of these hummocks, at least a cart-load, is surprising. We waded through the water to one of them, and found that it was four feet high, and nine feet in diameter. When we pulled it to pieces, the smell of musk was very perceptible. At the depth of about sixteen inches from the top we found a cavity, or chamber, and a small gallery leading from it to another chamber below, from which a second gallery descended, and then went upward again to a third chamber, from all which there was a perpendicular passage, leading down to below the level of the water, so that the rats can dive, and, without being seen again, enter their apartments, in which they breathe air.

The unio, or fresh-water mussel, is a favorite food of these rats, and they often leave the shells on the banks of the American rivers, with one valve entire and the other broken. In the even-

ing the note of the bull-frog, in these swamps, reminded me much of the twanging of a large Jew's harp.

From Acquia Creek, I went, by steamer, to Washington, and thence by railway through Philadelphia to the town of Burlington, in New Jersey, beautifully situated on the banks of the Delaware. Here I paid a short visit to my friend, Mr. William M'Ilvaine, and crossed the Delaware with him to Bristol, to renew my acquaintance with Mr. Vanuxem, a geologist of no ordinary merit. His death, which happened soon afterward, was a loss to the public as well as to many personal friends.

In Wilson's "Ornithology" it is stated, that the humming-bird migrates from the south to Pennsylvania the latter part of April, and builds its nest there about the middle of May. For the last thirty years, Mr. M'Ilvaine had never been disappointed in seeing it reach Burlington the first week of that month, generally about the middle of the week, its northward progress being apparently hastened or retarded by the mildness or inclemency of the season. They seem always to wait for the flowering of a species of horse-chestnut, called here the buck-eye, from a fancied likeness of its fruit to the eye of a deer. The bright-red blossoms of this tree supply the nourishment most attractive to these birds, whose arrival had been looked for the very day after I came. Strange to say, one of them, the avant-courier of the feathered host, actually appeared, and next morning, May 7th, hundreds were seen and heard flitting and humming over the trees. A lady sent us word that a straggler from the camp was imprisoned in her greenhouse, and, going there, I saw it poised in the air, sucking honey from the blossom of an orange-tree. The flower was evidently bent down slightly, as if the bird rested its bill upon it to aid its wings in supporting its body in the air, or to steady it. When it wished to go out, it went straight to the window at which it had entered, and, finding it closed, flew rapidly round the large conservatory, examining all parts of it, without once striking the glass or beating its wings against the wall, as the more timid of the feathered tribe are apt to do. No sooner, however, was a small casement opened, than it darted through it like an arrow.

CHAPTER XXXIX.

New York, clear Atmosphere and gay Dresses.—Omnibuses.—Naming of Streets.—Visit to Audubon.—Croton Aqueduct.—Harpers' Printing Establishment.—Large Sale of Works by English and American Authors.—Cheapness of Books.—International Copyright.—Sale of Eugène Sue's "Wandering Jew."—Tendency of the Work.—Mr. Gallatin on Indian Corn.—War with Mexico.—Facility of raising Troops.—Dr. Dewey preaching against War.—Cause of Influence of Unitarians.—Geological Excursion to Albany.—Helderberg War.—Voting Thanks to the Third House.—Place-hunting.—Spring Flowers—Geology and Taconic System.

May 7, 1846.—ON our return to New York, we were struck with the brightness of the atmosphere in spring, arising not merely from the absence of smoke, but from the quantity of solar light as compared to England, this city being in the same latitude as Naples. The unsullied purity of the air makes gay and brilliant colors in dress and furniture appropriate.

Every fortnight the "Journal des Modes" is received from France, and the ladies conform strictly to the Parisian costume. Except at balls and large parties, they wear high dresses, and, as usual in mercantile communities, spare no expense. Embroidered muslin, of the finest and costliest kind, is much worn; and my wife learnt that sixteen guineas were not unfrequently given for a single pocket handkerchief. Extravagantly expensive fans, with ruby or emerald pins, are also common. I had heard it said in France that no orders sent to Lyons for the furnishing of private mansions, are on so grand a scale as some of those received from New York; and I can well believe it, for we saw many houses gorgeously fitted up with satin and velvet draperies, rich Axminster carpets, marble and inlaid tables, and large looking-glasses, the style in general being Parisian rather than English. It was much more rare here than at Boston to see a library forming part of a suite of reception-rooms, or even a single book-case in a drawing-room, nor are pictures so common here.

In the five months since we were last in this metropolis, whole streets had been built, and several squares finished in the northern or fashionable end of the town, to which the merchants are now resorting, leaving the business end, near the Battery, where they formerly lived. Hence there is a constant increase of omnibuses passing through Broadway, and other streets running north and south. Groups of twelve of these vehicles may be seen at once, each with a single driver, for wages are too high to support a cad. Each omnibus has an opening in the roof, through which the money is paid to the coachman. We observed, as one woman after another got out, any man sitting near the door, though a stranger, would jump down to hand her out, and, if it was raining, would hold an umbrella over her, frequently offering, in that case, to escort her to a shop, attentions which are commonly accepted and received by the women as matters of course.

All the streets which cross Broadway, run east and west, and are numbered, so that they have now arrived at 146th-street—a mode of designating the different parts of the metropolis worthy of imitation on both sides of the Atlantic, since experience has now proved that there is in the Anglo-Saxon mind an inherent poverty of invention in matters of nomenclature. For want of some municipal regulations like those of New York, the same names are indefinitely multiplied in every great city, and letters, after wandering over all the streets bearing the same appellation, to the infinite inconvenience and cost of the post-office, are at length received, if haply they ever reach their destination, long after they are due.

The low island on which New York is built, is composed of granite and gneiss covered with “drift” and boulders. The original surface being very uneven, the municipality has fixed upon a certain grade or level to which all heights must be lowered by blasting the rocks or by carting away the gravel, and up to which all the cavities must be raised. Besides other advantages of this leveling process, the ground is said to become more healthy and free from malaria, there being no longer any stagnant pools of water standing in the hollows.

May 10.—Paid a visit to Mr. Audubon, the celebrated orni-

thologist, at his delightful residence on the banks of the Hudson, north of Bloomingdale. His son had just returned from Texas, where he had been studying the natural history of that country, especially the mammalia, and was disappointed at the few opportunities he had enjoyed of seeing the wild land quadrupeds in a state of activity, so as to observe their habits. I told him I had been equally surprised at the apparent scarcity of this tribe in the native forests of the United States. This whole class of animals, he said, ought to be regarded as properly nocturnal; for not merely the feline tribe and the foxes, the weasels and bats, shun the daylight, but many others feed partly by night, most of the squirrels and bears, for example. The ruminants no doubt are an exception, yet even the deer and the buffalo, like the wild horse, travel chiefly in the night.

From Mr. Audubon's I went to Highbridge, where the Croton water is made to play for the amusement of visitors, and is thrown up in a column to the height of 120 feet.

I went also to see the reservoir, inclosing an area of no less than thirty-six acres, from which the water is distributed to all parts of New York. In this artificial lake all the river sediment is deposited, the basin being divided into two parts, so that one may be cleaned out while the other is in use. The tunnel or pipe conveying the water for a distance of more than thirty miles, from the source to the Harlem River, is so large, that the chief engineer and commissioners of the works were able to float down it in a flat-bottomed boat when it was first opened, in July, 1842.

While at New York, we were taken by our literary friend, Mr. Cogswell, over the printing and publishing establishment of the Harpers, the largest in America, and only surpassed, in the scale of its operations, by two or three in Great Britain. They give employment to three hundred men, manufacture their own types and paper, and have a "bookbindery" under the same roof; for, in order to get out, with the utmost dispatch, the reprints of foreign works not entitled to copyright, they require to be independent of all aid from other traders. We were shown a fire-proof vault, in which stereotype plates, valued at 300,000 dollars, are deposited. In one of the upper stories a long line of steam-

presses was throwing off sheets of various works, and the greater number were occupied with the printing of a large illustrated Bible, and Morse's Geography for the use of schools. In 1845, the Harpers sold two millions of volumes, some of them, it is true, being only styled numbers, but these often contain a reprint of an entire English novel, originally published in two or three volumes, at the cost of a guinea and a half, the same being sold here for one or two shillings. Several of Bulwer's tales are among these, 40,000 copies of his "Last of the Barons" having just issued from this house. It may, indeed, be strictly said of English writers in general, that they are better known in America than in Europe.

Of the best English works of fiction, published at thirty-one shillings in England, and for about sixpence here, it is estimated that about ten times as many copies are sold in the United States as in Great Britain; nor need we wonder at this, when we consider that day laborers in an American village often purchase a novel by Scott, Bulwer, or Dickens, or a popular history, such as Alison's Europe (published at thirteen pounds in England and sixteen shillings in America), and read it at spare moments, while persons in a much higher station in England are debarred from a similar intellectual treat by considerations of economy.

It might have been apprehended that, where a daily newspaper can be bought for a halfpenny, and a novel for sixpence, the public mind would be so taken up with politics and light reading, that no time would be left for the study of history, divinity, and the graver periodical literature. But, on the contrary, experience has proved that, when the habit and facility of reading has been acquired by the perusal even of trashy writings, there is a steady increase in the number of those who enter on deeper subjects. I was glad to hear that, in proportion as the reading public augments annually, the quality of the books read is decidedly improving. About four years ago, 40,000 copies were printed of the ordinary common-place novels published in England, of which sort they now only sell about 8000.

It might also have been feared that the cheapness of foreign works unprotected by copyright, would have made it impossible

for native authors to obtain a price capable of remunerating them highly, as well as their publishers. But such is not the case. Very large editions of Prescott's "Ferdinand and Isabella," and of his "Mexico," and "Peru," have been sold at a high price; and when Mr. Harper stated to me his estimate of the original value of the copyright of these popular works, it appeared to me that an English author could hardly have obtained as much in his own country.* The comparative cheapness of American books, the best editions of which are by no means in small print, seems at first unintelligible, when we consider the dearness of labor, which enters so largely into the price of printing, paper, and binding. But, first, the number of readers, thanks to the free-schools, is prodigiously great, and always augmenting in a higher ratio even than the population; and, secondly, there is a fixed determination on the part of the people at large to endure any taxation, rather than that which would place books and newspapers beyond their reach. Several politicians declared to me that not only an income tax, but a window tax, would be preferred; and "this last," said they, "would scarcely shut out the light from a greater number of individuals." The duty on paper, in the United States, is trifling, when compared to that paid in Great Britain. Mr. Chambers informs us, that the Government duty of 5000*l.*, paid by him for his Miscellany, in twenty volumes, was equal in amount to the whole profits of that publication. The cost of advertisements, in America, is also small. One of my American friends sent over to a London publisher 250 copies of his work, charging him 4*s.* 6*d.* each.

* A letter dated April 15, 1849, was lately shown me from the Harpers, with permission to make known its contents, in which they mentioned, that having been authorized by Mr. Macaulay to publish in America his "History of England," they had printed six editions at various prices varying from four dollars to fifty cents (sixteen shillings and sixpence to two shillings). At the expiration of the first three months, they had sold 40,000 copies, and other booksellers who had issued independent editions had sold about 20,000; so that 60,000 copies had been purchased in the United States at a time when about 13,000 had been disposed of by Longman and Co., in London, at the price of 1*l.* 12*s.* each. As the cheap American editions were only just brought into the market at the date of this letter, the principal sale of the book was but commencing.

After paying entrance duties, and necessary outlay for advertisements in London, and the agency, it was found that the price must be as high as 16s.

The party who are in favor of an international copyright between England and the United States, seems to be steadily gaining strength among the booksellers, publishers, and authors, although the editors of newspapers and their readers may perhaps oppose the measure for some time. The number of reprisals now made by English speculators are very numerous. According to a statement lately presented to Congress by Mr. Jay, of New York, there are about 600 original American works "pirated" in Great Britain; or, to speak more correctly, while the law remains in its present state, reprinted without leave of their American authors, or any pecuniary acknowledgment to them.

Many are of opinion that the small print of cheap editions in the United States, will seriously injure the eyesight of the rising generation, especially as they often read in railway cars, devouring whole novels, printed in newspapers, in very inferior type. Mr. Everett, speaking of this literature, in an address to the students of Harvard College, said, "If cheap it can be called, which begins by costing a man his eyes, and ends by perverting his taste and morals."

As an illustration of the mischievous tendency of the indiscriminate reading of popular works by the multitude, when the higher classes and clergy can exert little or no control in the selection of the books read, the wonderful success of Eugène Sue's "Wandering Jew" was pointed out to me by many, with no small concern. This led me to ask Mr. Harper how many copies he had disposed of, and he answered, "80,000, issued in different shapes, and at various prices." It had so often been thrust into my hands in railway cars, and so much talked of, that, in the course of my journey, I began to read it in self-defense; and, having begun, could not stop till I had finished the whole, although the style of the original loses half its charms in an imperfect translation. "Le vieux dragon," for example, is always rendered the "old dragon," instead of "dragoon," and the poetry of a brilliant passage is nearly destroyed by "défense"

being translated "defense," instead of "barrier," with other blunders equally unpardonable. Yet the fascination of the original, and its power to fix the attention, triumph over these disadvantages, and over the violence done to probability in the general plot, and over the extravagance of many of its details. The gross, sensual, and often licentious descriptions in which the author indulges, in some scenes, and still more, such sentimental immorality as is involved in the sympathy demanded for Hardy's love and intrigue with a married woman (he being represented as the model of a high-minded philanthropist), make one feel the contrast of such a work with the chaste and pure effusions of Scott's genius. Yet there is much pure feeling, many touches of tenderness in the tale, and many passages fitted to awaken our best affections. Even the false political economy bordering on communism, is redeemed by the tendency of the book to excite sympathy for the sufferings, destitution, and mental degradation of the poor. The dramatic power displayed in many scenes, is of a high order; as when the Jesuit Rodin, receiving his credentials from Rome, is suddenly converted into the superior of the haughty chief to whom he had been previously the humble secretary, and where Dagobert's wife, under the direction of her confessor, refuses, in opposition to a husband whom she loves and respects, to betray the place of concealment of two young orphans, the victims of a vile conspiracy. In this part of the narrative, moreover, the beauty of the devotional character of the female mind is done full justice to, while the evils of priestly domination are exhibited in their true colors. The imprisonment of a young girl, of strong mind and superior understanding, in a madhouse, until she is worked upon almost to doubt her own sanity, are described with much delicacy of feeling and pathos, and make the reader shudder at the facility with which such institutions, if not subject to public inspection, may be, and have been abused.

The great moral and object of the whole piece, is to expose the worldly ambition of the Romanist clergy, especially of the Jesuits, and the injury done, not only to the intellectual progress of society at large, but to the peace and happiness of private families, by their perpetual meddling with domestic concerns. That the shafts

of this satire have not missed their aim, has been proved, among other evidences, by its having been thought politic, even in England, to circulate, chiefly, it is said, among the Irish Catholics, an "Adaptation of the Wandering Jew, from the original of Eugène Sue." In this singular re-cast of the French romance, which I have perused, the Russian police is every where substituted for the Jesuits, and Rodin becomes the tool of the Czar, intriguing in French politics, instead of the servant of the successor of Ignatius Loyola. On the whole, I am inclined to believe that the good preponderates over the evil, in the influence exerted on the million, even by such a romance. It has a refining rather than a corrupting effect, and may lead on to the study of works of a more exalting character. The great step is gained, when the powers of the imagination have been stimulated and the dormant and apathetic mind awakened and lifted above the prosaic monotony of every-day life.

May 9.—Called with a letter of introduction on Mr. Gallatin, well known by a long and distinguished career in political life. As a diplomatist in London, he negotiated the original Oregon treaty with Great Britain, and has now, at the age of eighty-two, come out with several able and spirited pamphlets, to demonstrate to his countrymen that their national honor would not be compromised by accepting the terms offered by the British Cabinet. Being at the same time an experienced financier, he has told them plainly, if they will go to war, how much it will cost them annually, and what taxes they should make up their minds to submit to cheerfully, if they would carry on a campaign with honor and spirit against such an enemy.

In the course of conversation I found that Mr. Gallatin was of opinion that the indigenous civilization of several Indian tribes, and of the Mexicans and Peruvians among others, was mainly due to the possession of a grain so productive, and, when dried in the sun, so easily kept for many years, as the maize or Indian corn. The potato, which, when healthy, can rarely be stored up and preserved till the next harvest, may be said, on the contrary, to be a food on which none but an improvident race would lean for support. "I have long been convinced," said Mr. Gallatin, "that

the Indian corn has also given a powerful impulse to the rapid settlement of the whites in Ohio, Indiana, Illinois, and other western states. In one of my first excursions to the west, I saw a man felling trees in March, who, when I returned in October, had harvested a crop of Indian corn, grown on the very spot. He had also the leaves and stems of the plant to serve for winter fodder for his cattle. He was an emigrant, newly arrived, and entirely without the capital indispensable to enable him to cultivate wheat, which must have been twelve or thirteen months in the ground before it could be reaped."

Next day the stirring news of the invasion of the Mexican territory by the American army, reached New York, and I met the news-boys, in every street, crying out, "War with Mexico!" Soon afterward I saw the walls covered with placards, headed with the words, "Ho, for the halls of the Montezumas!"

The mayor had called a public meeting to express sympathy with the President and the war-party at Washington. This meeting was held in the Park, and although it may have served the purpose of the democratic party, it was certainly a signal failure, if any strong expression of popular feeling in favor of such a war was looked for. In the crowd I heard nothing but Irish, Scotch, and German accents, and the only hearty cheer which any one orator could draw, even from this mob of foreigners, was obtained by representing the Mexicans as acting under the influence of British gold.

I met with no one person in society who defended the aggression on the Mexican territory; but, as they can not prevent it, they endeavor, each in his way, to comfort themselves that the mischief is no worse, some saying, it will be a less evil than fighting with Great Britain; others that it will furnish employment for a host of turbulent spirits; while some merchants hint that the democratic party, had they been economical, might have lowered the tariff, and carried out their dangerous theory of free trade, whereas now they will plunge the nation into debt, and be compelled to resort to high duties, which will "protect native industry." The dissatisfaction of others is unbounded; they dread the annexation of a region containing five millions of

Indians, which, say they, will deteriorate the general standard of the white population ;—they deplore the development of a love for military glory, a passion inconsistent with all true republican principles ;—and one friend observed to me, “ You will soon see a successful soldier, wholly unknown to all of us at this moment, a man unversed in civil affairs, raised to the Presidency.” I asked whether, in a country where nearly all are industriously employed, it will be possible to find recruits for foreign service. Nothing, they reply, is more easy. “ Our broad Indian frontier has nurtured a daring and restless population, which loves excitement and adventure, and in the southern states there are numbers of whites to whom military service would be a boon, because slavery has degraded labor.” A week later I received a letter from a correspondent in the south, who said, “ Such is the military fever in Arkansas, Louisiana, Alabama, and Mississippi, that these states alone would furnish 50,000 men, if required ; and in many districts we are in fear of such an enlistment of the white population, that there will be too few left at home to serve as a police for the negroes. Married men are going, as well as bachelors, lawyers, medical men, and schoolmasters, many of whom have no taste whatever for fighting or foreign service, but they know that to have served a year in a campaign, to have been in a battle, or have been wounded, would advance them more in an election, or even in their several professions, than any amount of study or acquired knowledge.”

The Sunday following we heard a sermon by the Rev. Orville Dewey, in which this spirit of territorial aggrandizement, this passion for war, these false notions of national honor and glory, were characterized as unchristian, and indicating a low standard of private as well as public morality. I remarked to a New England acquaintance, who was one of the large congregation, that whatever might be said against the voluntary system, the pulpit in America seemed to me more independent than the press. “ Because every newspaper,” he replied, “ is supported by half yearly or annual subscribers, and no editor dares write against the popular sentiment. He knows that a dagger is always suspended over him by a thread, and if he presumed to run counter

to the current, his table would be covered next morning with letters each beginning with the dreaded words, 'Stop my paper.' He has made a bargain, like that of Dr. Faustus, with the devil, bartering away his immortal soul for a few thousand dollars." When I afterward reflected on this alleged tyranny of regular subscribers, it occurred to me that the evil must be in a great degree mitigated by the cheapness and variety of daily prints, each the organ of some distinct party or shade of opinion, and great numbers of them freely taken in at every reading-room and every hotel.

I might say of Dr. Dewey's discourse, as I have already said of the preaching of the Unitarians generally, that, without wanting spirituality, it was more practical and less doctrinal than the majority of sermons to which I have been accustomed to listen. But I should mislead my readers, if I gave them to understand that they could frequent churches of this denomination without risk of sometimes having their feelings offended by hearing doctrines they have been taught to reverence treated slightly, or even with contempt. On one occasion (and it was the only one in my experience), I was taken, when at Boston, to hear an eminent Unitarian preacher, who was prevented by illness from officiating, and his place was supplied by a self-satisfied young man, who, having talked dogmatically on points contested by many a rationalist, made it clear that he commiserated the weak minds of those who adhered to articles of faith rejected by his church. If this too common method of treating theological subjects be ill calculated to convince or conciliate dissentients, it is equally reprehensible from its tendency to engender, in the minds of those who assent, a Pharisaical feeling of self-gratulation that they are not as other sectarians are.

I can only account for the power which the Unitarians have exerted, and are now exerting, in forwarding the great educational movement in America, in the face of that almost superstitious prejudice with which their theology is regarded by nineteenth-twentieths of the population, by attributing it to the love of intellectual progress which animates both their clergy and laity, and the deep conviction they are known to feel that public moral-

ity and happiness can only be insured by spreading an elevated standard of popular education throughout the masses. In their enthusiastic pursuit of this great end, they are acknowledged to have no thought of making proselytes to any system of religious doctrines, and are therefore trusted in the management of schools by the parents of children of the most opposite persuasions. In regard to their own faith, some misapprehension has arisen, in consequence of the name they bear, which was not chosen by themselves, but to which, on the contrary, they have objections, such as members of the Anglican Church might feel if some such name as Anti-transubstantiationists, or any term which simply expressed their opposition to some one article of the Romanist creed, had been fixed upon them. When the rigid Calvinism of the old Puritans caused a schism in New England, the seceders wished to free themselves from the fetters of a creed, and to take the Gospel alone as their standard of faith. They were naturally, therefore, averse to accept a name which might be generally supposed to imply that they attached a prominent importance to the negation of any one doctrine professed by other Christians. "I desire," said Channing, "to wear the livery of no party; but we accept the appellation which others have imposed upon us, because it expresses what we believe to be a truth, and therefore we ought not to shrink from the reproaches cast upon it. But, had the name been more honored, had no popular cry been raised against it, I would gladly have thrown it off."*

May 11.—Sailed from New York to Albany in a steamer, which carried me at the rate of eighteen miles an hour through the beautiful scenery of the Hudson River. I had been invited by two of the state surveyors of New York to make an excursion with them to the north of Albany, and to discuss in the field some controverted points respecting the geology of the oldest fossiliferous strata. There was a physician on board, who, having been settled for twenty-six years in Virginia, had now come back, after that long absence, to see his native state. His admiration and wonder at the progress made by New York in a quarter of a century were unbounded. Speaking of his adopted country,

* Channing's Works, vol. iii. p. 210.

he exclaimed, "We have been left far behind in the race." I suggested, that if, twenty-six years ago, a period had been fixed upon by law for the emancipation of their slaves, Virginia might, ere this, have been relieved of nearly all her negro population, so great has been the migration of negroes to the south. "It is useless," he said, "to discuss the practicability of such a measure, while the majority of our legislators, having been born slaveholders, are not convinced of its desirability." While my companion was absorbed in admiration at the improvement of "the Empire State," my thoughts and feelings took a very different turn, when I learned that "the Helderberg war," which I have alluded to in my former "Travels,"* is still going on, and seems as far from a termination as ever. The agricultural population throughout many populous counties have now been in arms for eight years, to resist payment of rents due to their landlords, in spite of the decisions of the courts of law against them. Large contributions have been made toward an insurrectionary fund—one of its objects being to support a newspaper, edited by a Chartist refugee from England, in which the most dangerous anti-social doctrines are promulgated. The "anti-renters" have not only set the whole militia of the state at defiance, in more than one campaign, but have actually killed a sheriff's officer, who was distraining for rent! If any thing could add to the disgrace which such proceedings reflect on the political administration of affairs in New York, it is the fact that the insurgents would probably have succumbed ere this, had they not been buoyed up by hopes of legislative interference in their favor, held out to them by popularity-hunting candidates for the governorship, and other official places.

In the newspapers of the day, a scene described as having occurred at the close of the legislative session in Albany excited my curiosity. One of the members of the House of Representatives moved a vote of thanks "to the gentlemen of the third house for the regularity of their attendance and the courtesy with which they had conducted themselves." The motion was seconded, read from the chair amidst great laughter, and then

* Vol. i. p. 68.

allowed to drop. I inquired what might be the meaning of this joke, and was asked in reply whether I had read the letters of Jesse Hoyt and others, edited by Mackenzie? I had, indeed, purchased the pamphlet alluded to, containing a selection from an immense mass (said to amount to twenty-five volumes) of the private and confidential correspondence of official men, left accidentally by them, on a change of administration, in the custom-house of New York. All these had been printed for the benefit of the public by their successors. The authenticity of the documents made known by this gentlemanlike stroke of party tactics, purporting to be penned by men who had filled high places in the State and Federal Governments, had been placed beyond a doubt; for the writers had attempted to obtain an injunction in the law courts to stop the publication, claiming the copyright of letters which they had written. Some time before this conversation, a merchant of Boston, who wished me to look only on the bright side of their institutions, and who was himself an optimist, had said to me, "Our politicians work in a glass hive, so that you always see the worst of them; whereas your public men can throw a decent veil of secrecy over much that may be selfish and sordid in the motives of their conduct. Hence the scandal of your court and cabinets is only divulged to posterity, a hundred years after the events, in private memoirs." Unfortunately for this theory, a glance at the Mackenzie letters was enough to teach me, that, if the American bees work in a glass hive, the glass is not quite so transparent as my friend would have led me to believe. The explanation of the satirical motion made in the House at Albany, then proceeded thus: "The patronage of the State of New York is enormous; the Governor alone has the appointment of two hundred and sixty civil officers, and the nomination of more than two thousand places is vested jointly in him and the senate. Some of these are for two, others for five years, and they are worth from two hundred to five thousand dollars a year. Among the posts most coveted, because the gains are sometimes very high, though fluctuating, are those of the inspectors, who set their mark or brand on barrels of exported goods, such as flour, tobacco, preserved pork, mackerel and other

fish, to guarantee their good quality, and guard the public against imposition, in cases where the articles would be injured if opened and examined by the purchaser. It is scarcely necessary to state, that where the prey is so abundant, there will the eagles be gathered together; and besides the aspirants to vacant offices, there is a crowd of lawyers and paid agents of private individuals and companies, who have to watch the passage of private and public bills through the legislature. During the whole session, they fill the Governor's ante-room, and the lobby of each house; and, as they are equal in respectability, number, station, and influence, to the two other houses put together, besides that they spend, perhaps, more money in Albany, we dignify them with the name of 'the third house.' "

"Are they," said I, "suspected of giving money-bribes to legislators?" "No; but they may convey a party of representatives on a railway trip, to make them acquainted with the merits of some case relating to a canal or railroad, and then entertain them with a dinner before they return." "In Massachusetts," said I, "people speak with more respect of their assembly." "No doubt, for in that state there is much less to give away, and therefore less corruption and intrigue. Besides, we have only 160 senators and representatives, whereas the assembly at Boston is far more numerous, so that it is not so easy to bring the influence of 'the third house' to bear upon it."

In the public museum at Albany, Dr. Emmons showed me a fine collection of simple minerals, rocks, and fossils, made by himself and other geologists to whom the state survey was intrusted. He then accompanied me across the Hudson River, to examine the slate and limestone eastward of Albany. Here, from the summit of Greenbush Hill, we enjoyed a magnificent view of the Catskill Mountains, and the Helderberg range in the distance. In the foreground was the river, and Albany itself, now containing a population of 40,000 inhabitants, with its domes and spires clustered together, in the higher parts of the city, and lighted up by a bright sunshine.

The day following, Dr. Emmons and Mr. James Hall went with me to explore the chain of the Bald Mountains, north of

Galeville. We passed through the gay town of Saratoga Springs, where the mineral waters burst out from "the Lower Silurian," or most ancient fossiliferous rocks. We saw many picturesque spots, especially the waterfall called Baaten Kill, near Galeville, but no grand or striking scenery. Among the plants in blossom, we gathered *Anemone nemorosa*, *Trientalis americana* (less beautiful than our British *Trientalis europæa*), *Cypripedium pubescens*, *Geranium sylvaticum*, three species of violet (all without scent), *Houstonia cærulea*, *Gnaphalium perenne*, and in several copses, the beautiful *Polygala pauciflora*, which might be truly said—

"To purple all the ground with vernal flowers."

Whether, in this part of the United States, there are any *fossiliferous* rocks older than the Lower Silurian, was the geological point at issue; and the question resembled one on which an animated controversy had lately been carried on in Great Britain, in regard to the relative ages of the "Cambrian" and "Silurian" groups. As those strata, called Cambrian, which contained organic remains, were found to be nothing more than highly disturbed and semi-crystalline Silurian rocks, so I believe the formations called Taconic in the United States, to have claim to no higher antiquity, and to be simply Silurian strata much altered, and often quite metamorphic.

CHAPTER XL.

Construction and Management of Railways in America.—Journey by Long Island from New York to Boston.—Whale Fishery in the Pacific.—Chewing Tobacco.—Visit to Wenham Lake.—Cause of the superior Permanence of Wenham Lake Ice.—Return to Boston.—Skeletons of Fossil Mastodons.—Food of those extinct Quadrupeds.—Anti-war Demonstration.—Voyage to Halifax.—Dense Fog.—Large Group of Icebergs seen on the Ocean.—Transportation of Rocks by Icebergs.—Danger of fast Sailing among Bergs.—Aurora Borealis.—Connection of this Phenomenon with drift Ice.—Pilot with English Newspapers.—Return to Liverpool.

May 21, 1846.—IN the construction and management of railways, the Americans have in general displayed more prudence and economy than could have been expected, where a people of such sanguine temperament were entering on so novel a career of enterprise. Annual dividends of seven or eight per cent. have been returned for a large part of the capital laid out on the New England railways, and on many others in the northern states. The cost of passing the original bills through the state parliaments has usually been very moderate, and never exorbitant; the lines have been carried as much as possible through districts where land was cheap; a single line only laid down where the traffic did not justify two; high gradients resorted to, rather than incur the expense of deep cuttings; tunnels entirely avoided; very little money spent in building station-houses; and, except where the population was large, they have been content with the speed of fourteen or sixteen miles an hour. It has, moreover, been an invariable maxim “to go for numbers,” by lowering the fares so as to bring them within the reach of all classes. Occasionally, when the intercourse between two rich and populous cities, like New York and Boston, has excited the eager competition of rival companies, they have accelerated the speed far beyond the usual average; and we were carried from one metropolis to the other,

a distance of 239 miles, at the rate of thirty miles an hour, in a commodious, lofty, and well-ventilated car, the charge being only three dollars, or thirteen shillings. We went by a route newly opened, first through Long Island, ninety-five miles in length, over a low, level tract, chiefly composed of fine sand; and we then found a steamer ready to take us across the Sound to New London in Connecticut, where we were met by the cars at Point Allen; after which we enjoyed much delightful scenery, the railway following the margin of a river, where there were cascades and rapids foaming over granite rocks, and overhung with trees, whose foliage, just unfolded, was illumined by a brilliant sunshine.

In the estuary of New London we saw many large whalers, and a merchant talked to me with satisfaction of the success of the United States whale-fishery in the Pacific, saying it amounted to 200,000 tons, while that of Great Britain did not exceed 60,000. "Five fish," said he, "is the usual cargo of an English whaler, as they boil the blubber at home, whereas the Americans boil it in a huge cauldron on deck, and after staying out three years, return with the oil of ninety whales in one ship. Our fishery in the Pacific is becoming a most important nursery for seamen, giving occupation to about 20,000 men, which would enable us at any moment to man a powerful fleet. The possession of California is therefore much coveted by us, because the port of San Francisco is the only one in the northern Pacific not exposed to the west wind, or blocked up by a bar of sand, such as that which renders the mouth of the Columbia River impassable to large ships. It is not territory but a sea-port we need, and this advantage a war with Mexico may give us."

There was besides much characteristic conversation in the cars, about constructing a railway 4000 miles long from Washington to the Columbia River; and some of the passengers were speculating on the hope of seeing in their lifetime a population of 15,000 souls settled in Oregon and California. A variety of plans was also freely discussed for crossing the isthmus from the Gulf of Mexico into the Pacific, so as to avoid the long and dangerous voyage round Cape Horn. A ship-canal across the isthmus of

Tehuantepec, 135 miles in length, was alluded to as the favorite scheme ; and the expediency of forcing Mexico to cede a right of way was spoken of as if the success of their campaign was certain.

It is the fashion for travelers in the New World to dwell so much on the chewing of tobacco, that I may naturally be expected to say something of this practice. There is enough of it to be very annoying in steamboats and railway-cars, but far less so as we journey northward ; and I never saw, even in the south, any chewing of the weed in drawing-rooms, although we were told in South Carolina that some old gentlemen still indulged in this habit. That it is comparatively rare in the New England states, was attested by an anecdote related to me of a captain who commands one of the steamers on Lake Champlain, who prided himself on the whiteness of his deck, intended to be kept as a promenade. Observing a southerner occasionally polluting its clean floor, he ordered a boy to follow him up and down with a swab, to the infinite diversion of the passengers, and the no small indignation of the southerner, when at length he discovered how his footsteps had been dodged. The governor of a penitentiary told me, that to deprive prisoners of tobacco was found to be a very efficient punishment, and that its use was prohibited in the New England madhouses, as being too exciting.

From Boston we went to Ipswich, in Massachusetts, to visit Mr. Oakes, the botanist, with whom we had spent many pleasant days in the White Mountains.* He set out with us on an excursion to Wenham Lake, from which so much ice is annually exported to England and other parts of the world.

This lake lies about twenty miles to the northeast of Boston. It has a small island in the middle of it, is about a mile long and forty feet deep, and is surrounded by hills of sand and gravel, from forty to a hundred feet high. The water is always clear and pure, and the bottom covered with white quartzose sand. It is fed by springs, and receives no mud from any stream flowing into it ; but at the lower extremity a small brook of transparent water flows out. In some parts, however, there must, I presume, be a soft and muddy bottom, as it is inhabited by eels, as well as by

* See vol. i. p. 64.

pickerel and perch. Mr. Oakes had recently received a present of a snapping turtle, weighing 25 lbs., taken from the lake. The ice is conveyed by railway to Boston to be shipped, and the increase of business has of late been such as to cause the erection of new buildings, measuring 127 feet by 120, and 24 feet high. They stand on the water's edge, by the side of the old store-houses, which are very extensive, built of wood, with double walls two feet apart, the space between being filled with sawdust, which excludes the external air; while tan is heaped up, for the same purpose, on the outside. The work of cutting and storing the ice is carried on in winter, and is not commenced till the ice is at least a foot thick. The surface is always carefully swept and kept free from snow; and as none but the most compact and solid ice is fit for the market, it is necessary to shave off three inches or more of the superficial ice, by means of a machine called an ice-plane, drawn by a horse. This operation is especially required after a thaw or a fall of rain, succeeded by a frost, which causes the lake to be covered with opaque, porous ice.

Sir Francis Head, in his "Emigrant," 1846, has attributed the durability of the Wenham Lake ice, or its power of resisting liquefaction, to the intense cold of a North American winter. It is perfectly true that this ice does not melt so fast as English ice; but the cause of this phenomenon is, I believe, very different from that assigned for it by the late governor of Upper Canada. "People in England," he says, "are prone to think that ice is ice; but the truth is, that the temperature of 32° Fahrenheit, that at which water freezes, is only the commencement of an operation that is almost infinite; for after its congelation, water is as competent to continue to receive cold, as it was when it was fluid. The application of cold to a block of ice does not, as in the case of heat applied beneath boiling water, cause what is added at one end to fly out at the other: but, on the contrary, the center cold is added to and retained by the mass, and thus the temperature of the ice falls with the temperature of the air, until in Lower Canada it occasionally sinks to 40° below zero, or 72° below the temperature of ice just congealed. It is evident, therefore, that if two ice-houses were to be filled, the one with Canada

ice, and the other with English ice, the difference between the quantity of cold stored up in each would be as appreciable as the difference between a cellar full of gold and a cellar full of copper ; that is to say, a cubic foot of Lower Canada ice is infinitely more valuable, or, in other words, it contains infinitely more cold, than a cubic foot of Upper Canada ice, which again contains more cold than a cubic foot of Wenham ice, which contains infinitely more cold than a cubic foot of English ice ; and thus, although each of these four cubic feet of ice has precisely the same shape, they each, as summer approaches, diminish in value ; that is to say, they each gradually lose a portion of their cold, until, long before the Lower Canada ice has melted, the English ice has been converted into lukewarm water."

There can be no doubt that where an intense frost gives rise to a great thickness of ice, permitting large cubic masses to be obtained after the superficial and porous ice has been planed off, a great advantage is afforded to the American ice merchant, and the low temperature acquired by the mass must prevent it from melting so readily when the hot season comes on, since it has first to be warmed up to 32° Fahrenheit, before it can begin to melt. Nevertheless, each fragment of ice, when removed from the store-house, very soon acquires the temperature of 32° Fahrenheit, and yet when a lump of Wenham ice has been brought to England, it does not melt by any means so readily as a similar lump of common English ice. Mr. Faraday tells me that Wenham Lake ice is exceedingly pure, being both free from air-bubbles and from salts. The presence of the first makes it extremely difficult to succeed in making a lens of English ice which will concentrate the solar rays and readily fire gunpowder, whereas nothing is easier than to perform this singular feat of igniting a combustible body by the aid of a frozen mass, if Wenham ice be employed.

The absence of salts conduces greatly to the permanence of the ice, for where water is so frozen that the salts expelled are still contained in air-cavities and cracks, or form thin films between the layers of the ice, these entangled salts cause the ice to melt at a lower temperature than 32° , and the liquefied portions give rise to streams and currents within the body of the ice, which

rapidly carry heat to the interior. The mass then goes on thawing within as well as without, and at temperatures below 32° ; whereas pure and compact Wenham ice can only thaw at 32° , and only on the outside of the mass.

Boston, May, 23.—Sir Humphrey Davy, in his “*Consolations in Travel*,”* has said, that he never entered London, after having been absent for some time, without feelings of pleasure and hope; for there he could enjoy the most refined society in the grand theater of intellectual activity, the metropolis of the world of business, thought, and action, in politics, literature, and science.

I have more than once experienced the same feelings of hope and pleasure after having wandered over the less populous and civilized parts of the United States, when I returned to Boston, and never more so than on this occasion, when, after traveling over so large a space in the southern and western states, we spent ten days in the society of our literary and scientific friends in the metropolis of Massachusetts, and in the flourishing university in its suburbs. They who wish to give a true picture of the national character of America, what it now is, and is destined to become, must study chiefly those towns which contain the greatest number of native-born citizens. They must sojourn in the east, rather than in the west or south, not among the six millions who are one half African and the other half the owners of negroes, nor among the settlers in the back-woods, who are half Irish, German, or Norwegians, nor among the people of French origin in Louisiana; for, however faithfully they may portray the peculiarities of such districts, they will give no better a representation of America, than an accurate description of Tipperary, Connamara, the West Indies, French Canada, Australia, and the various lands into which Great Britain is pouring her surplus population, would convey of England.

Among other scientific novelties at Boston, I was taken to see two magnificent skeletons, recently obtained, of the huge mastodon, one of them found in Warren County, New Jersey, which a farmer had met with six feet below the surface, when digging

out the rich mud from a small pond newly drained. There were no less than six skeletons, five of them lying together, and the sixth and largest about ten feet apart from the rest. A large portion of the bones crumbled to pieces as soon as they were exposed to the air, but nearly the whole of the separate specimen was preserved. Dr. John Jackson called my attention to the interesting fact that this perfect skeleton proved the correctness of Cuvier's conjecture respecting this extinct animal, namely, that it had twenty ribs, like the elephant, although no more than nineteen had ever been previously found. From the clay in the interior within the ribs, just where the contents of the stomach might naturally have been looked for, seven bushels of vegetable matter had been extracted; and Professor Webster, of Harvard College, had the kindness to present me with some of it, which has since been microscopically examined for me in London by Mr. A. Henfrey, of the Geological Survey. He informs me that it consists of pieces of the small twigs of a coniferous tree of the cypress family; and they resemble in structure the young shoots of the white cedar (*Thuja occidentalis*), still a native of North America, on which, therefore, we may conclude that the mastodon fed.

But a still nobler specimen of this great proboscidian quadruped was exhumed in August, 1845, in the town of Newburg, New York, and purchased by Dr. John C. Warren, Professor of Anatomy in Harvard University. It is the most complete, and, perhaps, the largest ever met with. The bones contain a considerable proportion of their original gelatine, and are firm in texture. The tusks, when discovered, were ten feet long; but the larger part of them had decomposed, and could not be preserved. The length of the skeleton was twenty-five feet, and its height twelve feet, the anchylosing of the two last ribs on the right side affording the comparative anatomist a true gauge for the space occupied by the intervertebrate substance, so as to enable him to form a correct estimate of the entire length. Dr. Warren gave me an excellent Daguerreotype of this skeleton for Mr. Clift, of the College of Surgeons in London.

Nothing is more remarkable than the large proportion of ani-

mal matter in the tusks, teeth, and bones of many of these extinct mammalia, amounting in some cases, as Dr. C. T. Jackson has ascertained by analysis, to 27 per cent., so that when all the earthy ingredients are removed by acids, the form of the bone remains as perfect, and the mass of animal matter is almost as firm, as in a recent bone subjected to similar treatment. It would be rash, however, to infer confidently from such data that these quadrupeds were mired at periods more modern than the fossil elephants found imbedded in similar clayey deposits in Europe, for the climate prevailing in this part of America may possibly have been colder than it was on the eastern side of the Atlantic. At the same time, I have stated in my former "Travels,"* that all the mastodons whose geological position I was able to examine into, in Canada and the United States, lived subsequently to the period of erratic blocks, and the formations commonly called glacial. I have also shown that the contemporary fresh-water and land shells were of such species as now live in the same region, so that the climate could scarcely have differed very materially from that now prevailing in the same latitudes.

During my stay at Boston, as I was returning one evening through Washington-street, I fell in with a noisy rabble of young men and boys, some of whom were dressed up for the occasion in rags, and provided with drums, sticks, whistles, tin-kettles, and pans, with other *musical* instruments, most of them on foot, but some mounted and sitting with their faces toward the horse's or ass's tail, others with banners, calling out, "Hurrah for Texas," for they styled themselves "the Texas volunteers." This I found was an anti-war demonstration, and shows that there is a portion even of the humblest class here, who are inclined to turn the aggressive spirit and thirst for conquest of the Washington Cabinet into ridicule.

June 1.—Sailed for England in the *Britannia*, one of the Cunard line of steamers, the same in which we had made our outward voyage. For several days a white fog had been setting in from the sea at Boston, and we were therefore not surprised to find the mist so dense off the harbor of Halifax that the light-

* Vol. i. pp. 51, 55. Vol. ii. p. 65.

house was invisible. By a continual discharge of guns, which were answered by the firing of cannon at the light-house, our captain was able safely to steer his ship into the harbor. In the post office we found letters from England, left by a steamer which had touched there two days before, and had come from Liverpool in nine days.

June 7.—When we had quitted Halifax five days, and were on the wide ocean, the monotony of the scene was suddenly broken by the approach of a group of icebergs, several hundred in number, varying in height from 100 to 250 feet, all of the purest white, except such portions as, being in shade, assumed a greenish hue, or such as acquired a delicate rose-color tint from the rays of the evening sun. These splendid bergs were supposed to have floated from Placentia Bay, in Newfoundland, where a great many merchantmen had been imprisoned for several months by a huge barrier of ice. They were almost all of picturesque shapes, and some of them of most fantastic form; three in particular, which came within a mile of us. One presented a huge dome, rising from the center of a flat tabular mass; another, more than 100 feet high, was precisely in the form of a pyramid, quite sharp at the top, and the angle formed by the meeting of two sides, very well defined; at the base of it rose a hummock, which we called the Egyptian Sphinx. The third was covered with pinnacles, and seemed like a portion of the Glacier des Bossons, in the valley of Chamouni, detached and afloat. Erect on one side of it stood an isolated obelisk of ice, 100 feet high, which increased very slightly in size toward the base. Some of these bodies appeared to the north, others far to the south of us, the loftiest of the whole rising out of the water to the height of 400 feet, according to the conjecture of the seamen, who thought they could not be far out in their estimate, as there was a schooner alongside of it, and they could tell the height of her mast within a few feet. We sailed within half a mile of several bergs, which were 250 feet, and within a quarter of a mile of one 150 feet in height, on which, by aid of the telescope, we distinctly observed a great number of sea-birds, which looked like minute black specks on a white ground. I was most anxious to ascertain whether

there was any mud, stones, or fragments of rock on any one of these floating masses, but after examining about forty of them without perceiving any signs of foreign matter, I left the deck when it was growing dusk. My questions had excited the curiosity of the captain and officers of the ship, who assured me they had never seen any stones on a berg, observing, at the same time, that they had always been so eager to get out of their way, and in such a state of anxiety when near them, that such objects might easily have been overlooked. I had scarcely gone below ten minutes, when one of the passengers came to tell me that the captain had seen a black mass as large as a boat on an iceberg, about 150 feet high, which was very near. By aid of a glass, it was made out distinctly to be a space about nine feet square covered with black stones. The base of the berg on the side toward the steamer was 600 feet long, and from the dark spot to the water's edge, there was a stripe of soiled ice, as if the water streaming down a slope, as the ice melted, had carried mud suspended in it. In the soiled channel were seen two blocks, each about the size of a man's head. Although I returned instantly to the deck when the berg was still in sight, such was then the haziness of the air, and the rapidity of our motion, that the dark spot was no longer discernible. Such instances of the transportation of rocks by ice, occurrences most interesting to geologists, were first recorded by Scoresby, in the northern hemisphere; but from the accounts given me by Sir James Ross and Dr. Joseph Hooker, they are evidently much more common in the icebergs drifted from the antarctic than from those of the arctic regions.

When we were among the ice, the temperature of the water was 45° Fahrenheit. On the day before we came up with it, the passengers had already begun to look out warmer clothing, and shawls and great coats were in requisition. Occasionally we were steering among small pieces of ice, and the wheel at the helm was turned first one way and then another, reminding me of the dangers of the Mississippi, when we were avoiding the bumping against logs. In the fore part of the vessel the watch was trebled, some aloft and others below, and we went on at the

rate of nine miles an hour, and once in the night came within less than a ship's length of a large berg. A naval officer on board declared to me next morning that the peril had been imminent; that he had weathered a typhoon in the Chinese seas, and would rather brave another than sail so fast in the night through a pack of icebergs. He now thought it most probable that the President steam-ship had been lost by striking a berg. He reminded me that we had seen a pinnacle of ice, distant 100 yards or more from the main body of a berg, of which it was evidently a part, the intervening submerged ice being concealed under water. How easily, therefore, might we have struck against similar hidden masses, where no such projecting pinnacle remained to warn us of our danger.

At half-past nine o'clock on the evening of the 8th June, it being bright moonlight, some hours after we had lost sight of the ice, when we were in a latitude corresponding to the south of France, we saw in the north a most brilliant exhibition of the Aurora Borealis; the sky seemed to open and close, emitting, for a short period, silvery streams of light like comets' tails, and then a large space became overspread with a most delicate roseate hue. The occurrence of this phenomenon in the summer season, and in so southern a latitude, seemed to point to its connection with the ice which was drifting over the sea between us and Newfoundland, now to the N. W. of us. We learn from Sir James Ross's narrative of the late antarctic expedition, the highly interesting fact, that when the Aurora Borealis was playing over the great barrier of coast ice on the shores of the antarctic land, it partook distinctly of the irregular and broken shape of the icy cliffs over which it hovered.*

June 12.—A pilot came on board from Ireland, with English newspapers, filled with debates on the repeal of the corn-laws. Among the foreign news, a considerable space was occupied with the affairs of France, Germany, Italy, India, China, and there was only a short paragraph or two about America, North and South. I had been traveling long enough in the New World to sympathize fully with the feelings of some of my American fellow-

* Vol. ii. p. 221. 1842.

passengers, who were coming abroad for the first time, when they expressed their surprise at the small space which the affairs of the United States occupied even in English journals. It is a lesson which every traveler has to learn when he is far from home, and seeks in a foreign newspaper to gain some intelligence of his native land. He is soon accustomed to find that day after day even the name of his country is not mentioned.

The speed of our steamer had been constantly increasing as the weight of coal diminished. The length of the voyage, therefore, to America might be considerably abridged if the quantity of coal were lessened by a day and a half's consumption, the steamer starting from the west of Ireland, to which passengers might be conveyed in a few hours, by steamboat and railway, from Liverpool.

June 13, Saturday.—Anchored off Liverpool at half-past ten o'clock in the evening, having made the passage from Boston in twelve days and a half, it being nine months and nine days since we left that port.

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